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Pennsylvania Petroleum
1750-1872

A Documentary History

Compiled and Edited
By
PAUL H. GIDDENS
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Allegheny College
Curator of Drake Well Memorial Park

COMMONWEALTH OF PENNSYLVANIA
DRAKE WELL MEMORIAL PARK
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
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INTRODUCTION

For over two centuries before Colonel E. L. Drake drilled his famous well in northwestern Pennsylvania, petroleum was known to exist in the United States. The earliest evidence of its presence in Pennsylvania goes back to the time of the old oil pits, which once covered the land above and below the junction of Oil Creek and Pine Creek, a short distance south of Titusville. According to the story, water seeped into these pits, and within a short time a layer of petroleum from one-third to one-half an inch thick formed upon the surface. A piece of woolen or flannel cloth or a blanket was then thrown into the pit. When saturated with petroleum, the cloth was taken out and wrung into some sort of container. In this crude but effective manner a race of people is supposed to have obtained petroleum. By whom and at what date these pits were excavated is a mystery. Lewis Evans' *Map of the Middle British Colonies in America,* published in 1755, is the earliest known document to indicate the presence of petroleum in Pennsylvania.

The greatest source of petroleum in Pennsylvania, as well as in the United States, prior to 1845 was along Oil Creek, a small stream in northwestern Pennsylvania. As white settlers moved into the region and settled along Oil Creek and its vicinity, they began collecting petroleum from little springs either in the bank or in the actual bed of the stream. The spring which yielded the greatest amount of oil and to which many of the late eighteenth and early nineteenth century observers refer was located in the middle of Oil Creek on the Hamilton McClintock farm about three miles above the junction of Oil Creek and the Allegheny. From it twenty to thirty barrels of pure oil could be obtained in a season. The local inhabitants valued and used it exclusively as medicine. They found it an infallible cure for all kinds of aches and pains. Almost every family in the region kept a small supply of Seneca oil, as it was called, for emergencies; for ordinary purposes a pint bottle would last a year. It also came into general use for saddle burns and scratches in horses.

About 1849 Samuel Kier, an owner and operator of canalboats between Pittsburgh and Philadelphia, conceived the idea of bottling and selling petroleum as a medicine. For years the salt wells of his father near Tarentum, Pennsylvania, on the Allegheny River, about twenty miles above Pittsburgh, had yielded a small amount of petroleum. It was an unwelcome substance, a source of annoyance. Because of its long usage in western Pennsylvania as a medicine, Kier opened an establishment in Pittsburgh where the oil was put up in half-pint bottles and wrapped in a descriptive circular telling of the wonderful curative properties of "Kier's Petroleum, or Rock Oil." Kier could not dispose of the two or three barrels daily produced by the wells, so he decided to enlarge the market by distilling petroleum and selling it as an illuminant. After much experimentation Kier devised a crude distillation process, about 1850 began to distill petroleum, and became America's pioneer oil refiner He named the new product "carbon oil" and sold it for $1.50 a gallon. Since it was better and cheaper than existing illuminants, carbon oil soon came into general use in many places in western Pennsylvania.

The market for petroleum as an illuminant was greatly increased after 1857 through the efforts of A. C. Ferris, a New York business man. While visiting in Pittsburgh in 1857, he saw in the basement of a drugstore a tin lamp burning carbon oil, which the firm of MacKeown and Finley had been distilling on a small scale. Impressed by its possibilities, Ferris negotiated with MacKeown and Finley to supply him with about 2,000 barrels of oil a year. He also purchased some from Kier. Ferris now proceeded to adapt a lamp which would burn carbon oil and to improve the refining process. With the spread of knowledge about petroleum and an increasing number of customers, Ferris' sale of illuminating oil soon outran the sources of supply. The price jumped from seventy-five cents a gallon to $1.50 and then to $2.00, a price so high that it furnished an incentive to find petroleum, if possible, in larger quantities. All efforts to increase the supply, however, met with indifferent success until a country doctor started a chain of events which led to the drilling of the Drake Well.

Dr. Francis Beattie Brewer, a graduate of Dartmouth College and a practicing physician, moved from Massachusetts to Titusville in 1851 to join his father's lumber firm, Brewer, Watson and Company. Immediately he became interested in an old oil spring located near Upper Mill on the company's property about two miles below Titusville and within a few rods of Oil Creek. A thorough examination of the spring and other surface conditions along the entire length of Oil Creek convinced Doctor Brewer that the oil had great possibilities, and after much discussion with the other members of the firm he persuaded them that they should utilize the oil and make it profitable.

In the fall of 1853, Doctor Brewer carried a small bottle of petroleum on a trip to Hanover, New Hampshire, to visit relatives and friends. While he was there, both Dr. Dixi Crosby of the Dartmouth Medical

School and Professor O. P. Hubbard of the Chemistry Department of Dartmouth College examined the sample. The latter at once pronounced it very valuable but, because the oil could not be obtained in large quantities, said that it could hardly become an article of commerce. A few weeks later, George H. Bissell, another graduate of Dartmouth and a young lawyer in New York City, returned to his home in Hanover, saw the bottle of petroleum in Crosby's office, and immediately became interested in it. Bissell wondered why petroleum could not be used as an illuminant like kerosene. Aroused by the prospect, Bissell and his business partner, Jonathan G. Eveleth, decided, if a sufficient supply of petroleum could be found, to organize a company, buy the land, develop the spring, and market petroleum. After many delays involving trips to Titusville to see the farm, interviews with Brewer, and trips to New Haven to interest certain capitalists, the final details were completed.

On November 10, 1854, Bissell and Eveleth purchased the Hibbard farm, on which the principal petroleum springs in northwestern Pennsylvania were located, from Brewer, Watson and Company of Titusville for $5,000. Furthermore, on December 30, 1854, Eveleth and Bissell organized the Pennsylvania Rock Oil Company of New York, the first petroleum company in the world. Owing to the hard times, the dubious character of the venture, the ignorance of the value of petroleum, the lack of confidence in the promoters, and the fact that in the State of New York stockholders of joint stock companies were liable for all debts of the company, it was exceedingly difficult to sell stock. In April, 1855, Professor Benjamin Silliman, Jr., of Yale College, whom the promoters had employed to analyze the oil, made his report and pointed out its economic value. This proved to be a turning point in the establishment of the petroleum industry. A number of New Haven capitalists, including James M. Townsend, the President of the City Savings Bank, William A. Ives, and Asahel Pierpont, were impressed by Silliman's report and agreed to buy stock, provided the company was reorganized under the liberal corporation laws of Connecticut. Under the circumstances, Eveleth and Bissell abandoned the original company, and formed the Pennsylvania Rock Oil Company of Connecticut on September 18, 1855, with a capital stock of $300,000. The promoters deeded the Hibbard farm to the new company. They retained, however, a controlling share of the stock, but the new company was predominantly a New Haven affair.

Owing to a lack of harmony which unexpectedly developed between the New Haven and the New York stockholders over different things, little progress was made. While matters were at a standstill, Bissell, attracted one day by an advertisement of a bottle of Kier's rock oil in a drugstore window in New York City, conceived the idea of drilling for petroleum as they drilled for salt. He persuaded Lyman and Havens, prominent Wall Street real estate brokers, to lease the Hibbard farm and drill for oil. Before they had time to commence operations, the panic of 1857 overwhelmed them, so that it was impossible to fulfill the terms of their contract. Taking advantage of a technicality, Lyman and Havens surrendered the lease. James M. Townsend, now President of the Pennsylvania Rock Oil Company of Connecticut, decided that he and his New Haven associates should organize a company, assume the lease, drill for oil, and monopolize the oil business. Thereupon, they organized the Seneca Oil Company on March 23, 1858, with a capital of $300,000, leased the Titusville property from the Pennsylvania Rock Oil Company of Connecticut, elected Edwin L. Drake as General Agent, and sent him to Titusville in the spring of 1858 to drill for oil.

After many unavoidable delays and overcoming numerous obstacles, Drake began drilling during the summer of 1859. On Saturday afternoon, August 27, as Drake and his men were about to quit work, the drill dropped into a crevice at a depth of sixty-nine feet from the surface and slipped down six inches. They pulled out the tools and went home without any thought of having struck oil; they expected to go down several hundred feet more. Late Sunday afternoon, the driller, William A. Smith, visited the well, peered into the pipe, and saw a dark fluid floating on top of the water within a few feet of the derrick floor. Oil had been struck! Drake had demonstrated in a practical way how petroleum could be secured in greater abundance; he had tapped the vast subterranean deposits of petroleum in the basin of Oil Creek; and he had ushered in a new industry which not only provided the world with a cheap, safe, and efficient illuminant, but a source of unexcelled lubricating oil.

The news of Drake's accomplishment swiftly spread, and hundreds of people daily poured into Titusville. Everyone was wild to lease or buy land at any price and drill a well. The successful completion of the Barnsdall, Crossley, and Williams wells in 1860 intensified the excitement. At the lower end of Oil Creek, in and around Franklin, and up the Allegheny around Tidioute, capitalists purchased or leased scores of sites and commenced to drill.

With the drilling of these pioneer wells, the petroleum industry began to develop and expand. The striking of large flowing wells, the establishment of refineries, the opening of markets at home and abroad, the appearance of teamsters, the construction of pipe lines, the rise and decline of mushroom oil towns, the formation of joint stock companies, the speculation in oil stocks and lands, the development of such allied industries—barrel factories, chemical plants, engine and boiler works, and oil well supply companies, the invention of new devices to use oil, the extension of the railways into the oil region, the efforts to corner the oil supply, and the organization of oil exchanges constitute significant chapters in the history of the industry during the decade after 1859.

The story of the origin and development of the petroleum industry in Pennsylvania, long neglected by historians as a field of study, is an exciting and colorful period in the industrial history of the Commonwealth and the Nation. Through the use of documents, letters, and contemporary records, some of the prominent aspects are presented in this volume. All of the known accounts, written at different times by persons who either witnessed the drilling of the Drake Well or had some official connection with it, have been brought together in Part II. These narratives, taken in conjunction with the letters and documents in Parts III and IV, form an important source of information about Drake and the drilling of his famous well. In Part V a wide variety of contemporary accounts have been selected to illustrate different phases in the evolution of the industry. Many of the documents and letters, newly-discovered, have never been published. Other portions of the material have been previously published but lie buried deep in inaccessible newspaper files and in old books now out of print and scarce. The material in this volume has been drawn, to a large extent, from the valuable and rich collection in the library of the Drake Well Memorial Park, Titusville.

I am very grateful to the Pennsylvania Historical and Museum Commission for assisting me in the preparation of this volume and for undertaking its publication; to Dr. Donald A. Cadzow, Executive Director, and Dr. S. K. Stevens, State Historian, for their cordial interest in the work; and to Donald H. Kent, Associate State Historian, for his valuable service in seeing the manuscript through the press.

Paul H. Giddens.

Allegheny College
Meadville, Pennsylvania
December 25, 1946

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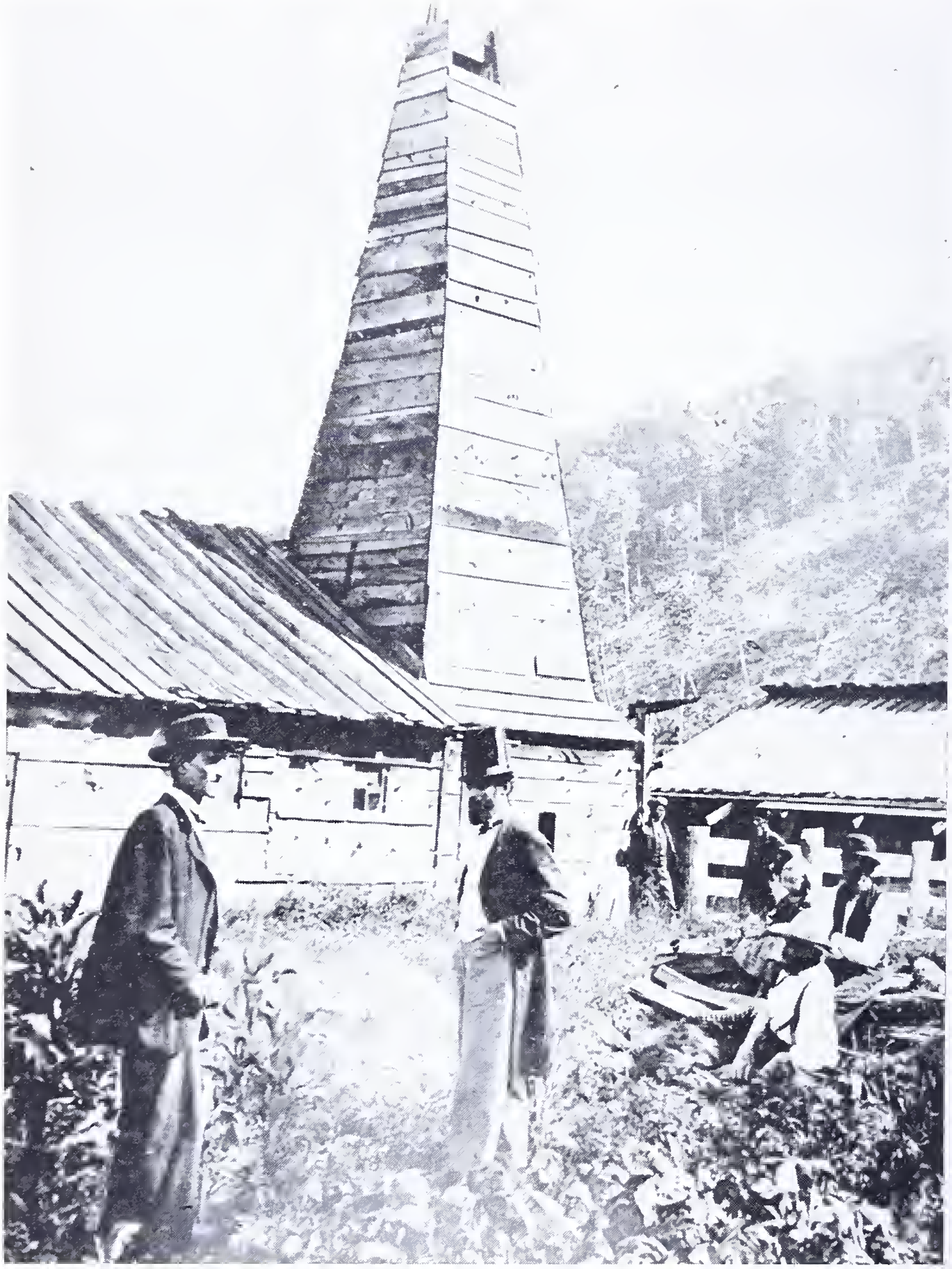


THE DRAKE WELL, 1861

In the foreground, to right, is E. L. Drake and to left, Peter Wilson, his friend. Mather Collection, Drake Museum.

PART I

PETROLEUM IN PENNSYLVANIA BEFORE 1859

PART I

PETROLEUM IN PENNSYLVANIA BEFORE 1859

Many accounts, written between 1767 and 1850 by travelers through Pennsylvania or early settlers in the region, describe the oil springs or oil pits from which petroleum was obtained in northwestern Pennsylvania. From these sources we learn how it came to be called "Seneca Oil," how it was collected, how it was used, and about the price, color, and odor. While the quantity of petroleum produced and used prior to 1845 is not exactly known, it is safe to conclude that the amount was insufficient to be sold extensively and to constitute an important article of trade. There was no organized and commercially successful traffic. Petroleum was almost valueless, except as medicine.

In the last decade before the Civil War, Samuel Kier of Pittsburgh, after much experimentation, found a crude process of distillation and began producing "carbon oil" to burn in lamps. A. C. Ferris of New York City improved upon the refining process and made a better lamp. As a result, he soon developed the market for petroleum as an illuminant to such an extent that the demand outran the supply. It was at this point that E. L. Drake drilled his well and demonstrated in a practical way how petroleum could be produced in greater abundance.

1. First Description of Petroleum in Pennsylvania, 1768

The earliest and most reliable information about petroleum in northwestern Pennsylvania is derived from "The Diaries of Zeisberger Relating to the First Missions in the Ohio Basin," *Ohio Archaeological and Historical Publications,* XXI, 79. Zeisberger, a Moravian missionary, brought the Gospel to the Indians at Goschgoschuenk, a Monsey town at the junction of Tionesta Creek and the Allegheny River, now the approximate site of Tionesta, Pennsylvania. In 1768 four of Zeisberger's party went on a hunting trip down the Allegheny. On their return Zeisberger heard about petroleum and made the following entry.

On the 7th Abraham and his companions returned from the chase. They brought back some oil from the oil-well. There are said to be various such wells in this region. The oil has a very strong odor, and cannot be used with foods. The Indians use it externally as a medicine and it would be possible to use it for lighting. The oil comes out of the ground with the water and then rises to the top, so that it is possible to skin it. The Indians generally try to get that which has just come up, as it has not so pungent an odor. The nature of these oil-well might will be investigated.

2. SCHOEPF HEARS ABOUT AN OIL SPRING

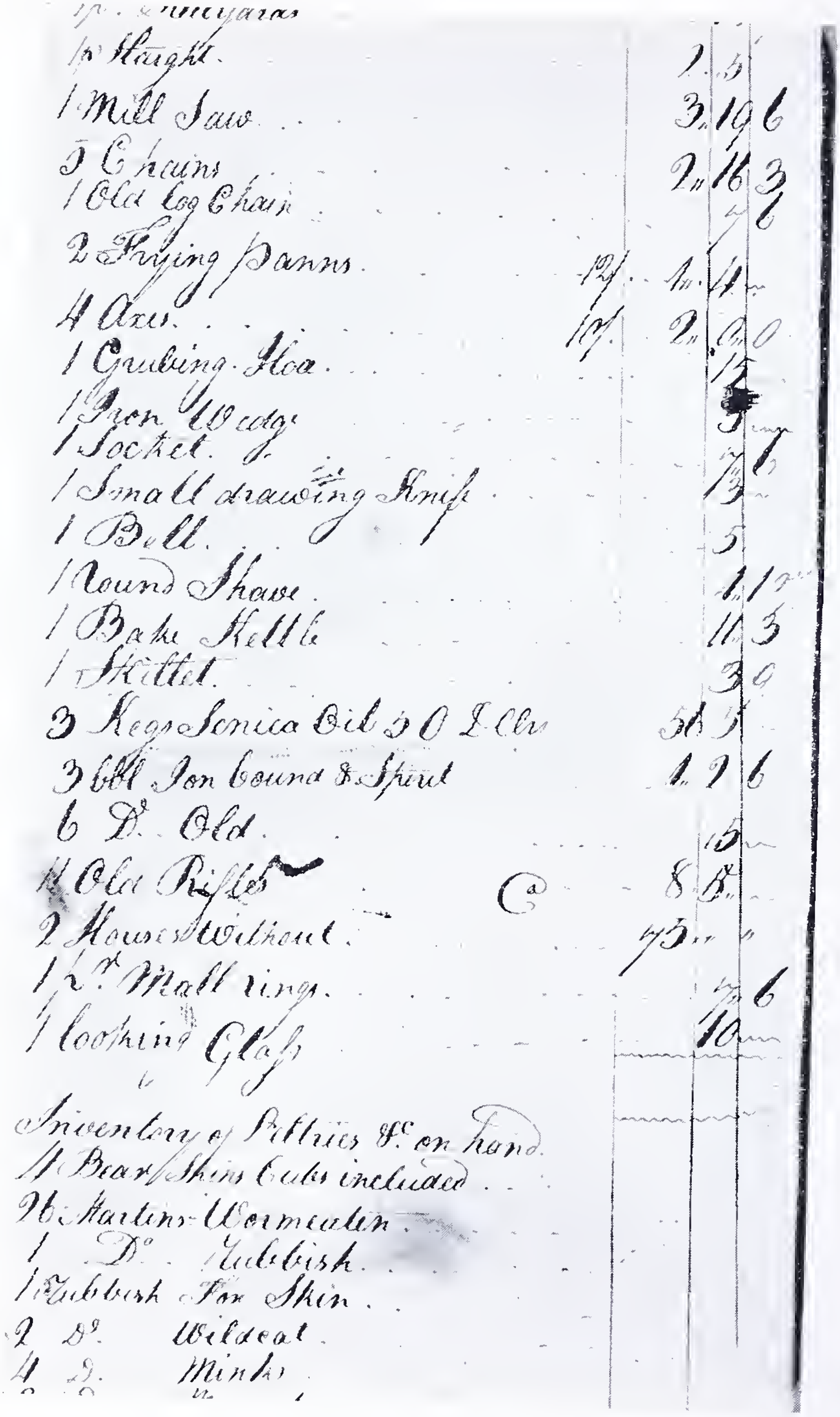
Although he did not visit the region, Dr. Johann David Schoepf, in his travels in 1783 and 1784, heard of petroleum and an oil spring in northwestern Pennsylvania. The following extract is taken from his work, *Travels in the Confederation* (Alfred J. Morrison, ed. and trans., Philadelphia, 1911), I, 254.

Petroleum occurs in several ways; but there is a spring in particular, near Allegheny Creek 90 miles from here [Pittsburgh], which is heavily saturated with it, and the broad creek is for a long distance covered with the swimming oil.

3. GENERAL WILLIAM IRVINE'S REPORT ON PETROLEUM, 1785

Appointed to explore a tract of land presented by the State of Pennsylvania to its American Revolutionary War soldiers in 1785, General William Irvine and his agents examined the oil seepage on Oil Creek. In his report to President Dickinson, found in the *Pennsylvania Archives,* First Series, XI, No. 25, 516, Irvine wrote as follows about petroleum in northwestern Pennsylvania.

Oil Creek has taken its name from an oil or bituminous matter being found floating on the surface. Many cures are attributed to this oil by the natives, and lately by some whites, particularly Rheumatic pains and old Ulcers; it has hitherto been taken for granted that the water of the Creek was impregnated with it, as it was found in so many places, but I have found this to be an error, as I examined it carefully and found it issuing out of two places only—these two are about four hundred yards distant from [each] other, and on opposite sides of the Creek. It rises in the bed of the Creek at very low water, in a dry season I am told it is found without any mixture of water, and is pure oil; it rises, when the creek is high, from the bottom in small globules, when these reach the surface they break and expand to a surprizing extent, and the flake varies in color as it expands; at first it appears yellow and purple only, but as the rays of the sun reach it in more directions, the colors appear to multiply into a greater number than can at once be comprehended.



1p Haught		1	5	
1 Mill Saw		3	19	6
5 Chains		2	16	3
1 Old Log Chain			7	6
2 Frying panns	12/	1	4	
4 Axes	10/	2	0	0
1 Grubing Hoe			15	
1 Iron Wedge			9	
1 Socket do			7	6
1 Small drawing Knife			13	
1 Bell			5	
1 Round Shave			1	1
1 Bake Kettle			11	3
1 Skillet			3	0
3 Kegs Senica Oil 50 Dllrs		56	5	
3 bbl Iron bound & Spirit		1	1	6
6 Do. Old			15	
4 Old Rifles @		8	5	
2 Horses Without		75		
1 pr. Mall rings			7	6
1 looking Glass			10	

Inventory of Peltries &c. on hand
11 Bear Skins Cubs included
96 Martins Wormeaten
1 Do. Rubbish
1 Rubbish Fox Skin
2 Do. Wildcat
4 Do. Minks

EARLY OIL QUOTATIONS, 1797

One of the earliest documents showing the price of oil—"3 Kegs Senica Oil 50 Dllrs." To the extreme right the price is shown in English pounds—L56, 5s. Taken from the Day Book of General William Wilson, who kept a store at Ft. Franklin. John E. Reynolds Collection, Meadville.

4. GENERAL BENJAMIN LINCOLN'S COMMENT ON AN OIL SPRING

Writing in the *Memoirs of the American Academy of Arts and Sciences,* I, (Boston, 1785), 375, General Benjamin Lincoln made the following comment about an oil spring along Oil Creek.

In the northern parts of Pennsylvania, there is a creek called Oil-Creek, which empties itself into the Allegheny river, issuing from a spring, on the top of which floats an oil, similar to what is called Barbadoes tar, and from which may be collected, by one man, several gallons in a day. The troops, in marching that way, halted at the spring, collected the oil, and bathed their joints with it. This gave them great relief, and freed them immediately from the rheumatic complaints with which many of them were affected. The troops drank freely of the waters:—they operated as a gentle purge.

5. THADDEUS MASON HARRIS AND "SENECA INDIAN OIL"

While visiting Pittsburgh in 1803, Thaddeus Mason Harris heard about the "Seneca Indian Oil" and the petroleum springs. His record, taken from his *Journal of a Tour Into the Territory Northwest of the Allegheny Mountains; Made in the Spring of the Year 1803* (Boston, 1805), 46, is as follows.

The *Seneca Indian Oil* in so much repute here is *Petroleum;* a liquid bitumen, which oozes through fissures of the rocks and coal in the mountains, and is found floating on the surface of the waters of several springs in this part of the country, whence it is skimmed off, and kept for use. From a strong vapour which arises from it when first collected, it appears to combine with it sulphureous particles. It is very inflammable. In these parts it is used as a medicine; and, probably, in external applications with considerable success. For chilblains and rheumatism it is considered as an infallable specific. I suppose it to be the bitumen which Pliny describes under the name of Naptha, Lib. II. ch. 105.

6. THOMAS ASHE'S ACCOUNT OF AN OIL SPRING

In traveling from Erie to Pittsburgh, Pennsylvania, in 1806, Thomas Ashe heard about one of the oil springs. His report, taken from his *Travels in America Performed in 1806 for the Purpose of Exploring the Rivers Allegheny, Monongahela, Ohio, and Mississippi, and Ascertaining the Produce and Condition of Their Banks and Vicinity* (London, 1808), is as follows.

Not far from Pittsburgh is a well which has its surface covered with a bituminous matter resembling oil; and which the neighboring inhabitants collect, and use in ointments and other medicinal preparations. The vapour arising from this well is inflammable; and has been known to hang in a lambent state over the orifice, being fed by fresh exhalations, for several hours together. The medical men of Pittsburgh profess to have analyzed this oil; and to have discovered in it a variety of virtues, if applied according to their advice.

7. METHOD OF COLLECTING PETROLEUM IN 1807

Fortescue Cumming in his book, *Sketches of a Tour to the Western Country, Through the States of Ohio and Kentucky; A Voyage Down the Ohio and Mississippi Rivers, and a Trip Through the Mississippi Territory, and Part of West Florida* (Pittsburgh, 1810), 84, gives an interesting account of how Seneca oil was collected along Oil Creek in 1807.

The virtues of the Seneca oil are similar to those of the *British oil,* and supposed to be equally valuable in the cures of rheumatick pains, &c. Large quantities of the Seneca oil is collected on Oil Creek, a branch of the Allegheny river, and sold at from one dollar and a half to two dollars per gallon. The mode of collecting it is this: the place where it is found bubbling up in the creek is surrounded by a wall or dam to a narrow compass, a man then takes a blanket, flannel, or other woolen cloth, to which the oil adheres, and spreading it over the surface of the enclosed pond, presses it down a little, then draws it up, and running the cloth through his hands, squeezes out the oil into a vessel prepared for the purpose; thus twenty or thirty gallons of pure oil can be obtained in two or three days by one man.

8. OIL PITS ON OIL CREEK, 1820

Timothy Alden, the first President of Allegheny College, Meadville, Pennsylvania, provides one of the earliest descriptive accounts of the oil pits at the northern end of Oil Creek, and suggests the commercial possibilities of petroleum. Alden's account was written on February 18, 1820, and was published in his paper "Antiquities and Curiosities of Western Pennsylvania," *Archaeologia Americana* (Transactions and Collections of the American Antiquarian Society, Worcester, Massachusetts, 1820), I, 310-311.

Seneca Oil. On the flats of Oil Creek, twenty-eight miles southeasterly from Meadville, many oblong pits have been dug several feet deep, from the bottom of which the Seneca oil, or petroleum, oozes and floats on the surface of the water, with which they are partially filled. Some of these are of unknown antiquity; and whether the work of the French, who, in the former part of the last century had military establishments on our principal streams, or of that people, of whom no tradition has reached our times, but of whose judgment and skill in the art of fortifying there are numerous evidences, it is impossible to resolve.

By extending the operation, this oil, called by the Senecas, au nus′, might be collected so as to become a profitable article of commerce. Fifteen barrels were once taken, in one season from a single pit. It was formerly sold at two dollars a gallon. The common price is now one dollar fifty cents. It is one of the most penetrating liquids in nature. No wooden nor earthen vessel is impervious to it. Even glass, in which it has stood for some time, cannot be cleared of its scent. This oil is much esteemed for its efficacy in removing rheumatick complaints. It burns well in lamps, and might be advantageously used in lighting streets. If, by some process, it could be rendered inodorous, it would become an important article for domestick illumination.

9. Oil Springs along Oil Creek, 1830

The following account of the oil springs along Oil Creek appeared in the *New York Journal of Commerce* in 1830 and is taken from Sherman Day, *Historical Collections of the State of Pennsylvania* (Philadelphia, 1843), 250. It is of special interest to note that considerable quantities were reaching New York at this time for medicinal purposes.

On an extensive plain, there is a vast mound of stones, containing several hundred thousand cart loads. This pyramid has stood through so many ages, that it has become covered with soil, and from the top rises a noble pine-tree, the roots of which, running down the sides, fasten themselves in the earth below. The stones are many of them so large that two men can only move them with difficulty, and yet they are unlike any others in the neighborhood. Indeed there are not in the neighborhood any quarries from which so large a quantity could ever have been taken. This artificial curiosity is on the borders of Oil Creek; a name derived from a natural curiosity no less remarkable than the foregoing. Springs exist on its margin, from which there is a constant flow of oil, floating on the surface of the water and running into the creek, which may be seen for a great distance down the stream. The oil is burned in lamps, and used in various ways, but is particularly valued for its medicinal qualities. The inhabitants make excavations in the low and marshy ground, which are immediately filled with water, covered with oil, which they skim off. Considerable quantities are annually brought to this city and sold to the apothecaries.

10. OIL PITS ALONG OIL CREEK, 1848

The fullest account relating to the oil pits along the upper end of Oil Creek was written by William H. Davis and delivered before the Meadville Literary Union on February 18, 1848, in Meadville, Pennsylvania. Davis' description appeared in *The Crawford Democrat* (Meadville, Pennsylvania), April 1, 1848.

A short distance below the village of Titusville, in this county, and on the west side of Oil Creek, there are perhaps two thousand pits, scattered over a level plain not exceeding five hundred acres. Some of these are very close together, as close as the vats in a tan yard, which they somewhat resemble, each having been about 7 or 8 feet long, 4 wide and 6 deep. These pits or vats had all been nearly filled, some of them entirely so, by vegetable deposit, perhaps the accumulation of ages. The mounds raised at the side of each pit by the excavation of the earth from it are distinctly visible. Close upon the margin of many of them and upon the very mounds made of the earth, trees whose size indicate an age of two or three hundred years are found growing. Those trees could not have existed at the time those vats were made, for it is reasonable to suppose that those engaged in making those pits, would either have commenced their labor so far from the standing timber that they would not be obstructed by the roots, or would have cut the timber down. Another thing affording an index to the time when these vats may have been made, is the fact that the inhabitants now in their vicinity first discovered the pits from their regularity in size and the order of their location, and indentations of the surface and the general appearance of the mounds, they were induced to open them. On doing so they discovered that each pit was of the size before mentioned and walled with logs, regularly cut and halved at the ends so that they could lie close together, thus preventing the caving in of the earth. Now there are no evidences on the ground showing where the logs used in walling the pit were cut. And although the whole flat is to this day covered with standing timber, not a stump remains to show that the axe-man had ever been there prior to its visitation by the whites. Many of these pits have recently been opened and all were found to be about the same depth, fashioned and walled nearly exactly alike. Whether it was curiosity or cupidity this investigation I am unable to determine—but certain it is that when excavated to the bottom of the log wall it was found that water raised in the pit to the depth of four or five inches. On visiting the pit a day or two after the excavation, it was ascertained that the water in them was covered with oil to the depth of one-third or one-half an inch. This at once demonstrated the use to which they had been applied. They had been used for gathering what we now call "Senaca Oil," and the number of the pits shows clearly that whoever engaged in it, had, to use a modern expression, "gone into a wholesale business." It also proves another thing, that those pits were not made by the Indians. Their regularity, their number, their having been walled with cut logs, halved at the end, the averseness of the Indian to labor, all forbid the idea that he could have been their creator. Besides this, the Indians, I have been informed, have no traditions respecting them, at least none more satisfactory than they have of the mounds and fortifications found throughout the west. Nor could these evidences of former occupancy, have been made by the French. The number of the pits proves that many persons must have been employed in collecting this Senaca Oil. The French were an enterprising, intelligent, and warlike people. Had they been the operators, here we would have found, perhaps, an old fort, or the ruins of a village. They would not have been in such numbers and for such a length of time, in a particular district of the country, as the work indicated they must have remained without the means of protecting themselves from the wild man of the forest. In addition to this, the French did not take possession or visit our country, till about the year 1752; whilst the trees, mounds and pits indicate a much greater age than would be allowed them by assigning that period for their construction. And more than all, the French have no records, as I have been creditibly informed, showing that they had any knowledge of the article obtained there, and now called Senaca Oil. It is well known that their occupation of this country was a military occupation. And by the rules of their military code, everything of note in which a portion of the army was engaged, would have been reported, and would be now on file in the war department of France. Is it probable that so many soldiers of the French army as must necessarily have been engaged in this business, for the requisite length of time would fail to have been reported to the department, especially in a matter which must have greatly excited their curiosity as well as their desire for gain? They were not made by the French; they were not made by the North American Indians, but in all probability they were made by that people who erected the other mounds and fortifications, towns and cities in the valley of the Mississippi. Their appearance bears the same age, and justifies this conclusion.

Other evidences might be referred to to show that our county was inhabited by another race of people than those who were found to be its occupants by the French. I refer to the mounds, which now exist in various parts of the county. Some are found on Crooked Creek, some on Shenango, some on Conneaut Creek, some on French Creek, and one near this Borough, on the land of the late Cornelius Van Horne, Esq. Some of these have been opened, and found to contain human skeletons, and are considered to be receptacles for the dead. Now it is not the custom of any of the present Indian tribes to erect mounds over their dead, at least no instance of the kind has been noticed since they have come in contact with the Anglo-Saxon race. Where they exist comparatively free from the white man, and where we would suppose their own national customs to remain in full force, they erect a scaffold and place their dead upon that, leaving the inanimate body to be visited by the winds of Heaven and the fowls of the air.

11. S. M. KIER, THE PIONEER OIL REFINER

When a movement was started in the oil region to erect a monument to Colonel E. L. Drake as the "discoverer" of petroleum, it stimulated a newspaper man, L. E. Stofiel, of Pittsburgh, to make an investigation concerning the appearance of petroleum in the salt wells of Tarentum, Pennsylvania, the work of S. M. Kier, and Drake's relationship to the salt wells of Tarentum. He interviewed many persons, who had some connection with the Tarentum salt wells or recollections about Kier's work, and recorded the testimony. Stofiel then prepared an account in which he used the direct testimony of the persons interviewed. This article appeared in *The Pittsburgh Dispatch* in 1892; Part I appeared on July 31; and Part II appeared on August 7. The account is as follows.

PART I

The group of men who figure in this narrative are all living. They are residents of Allegheny county. The statements they make are about the enterprises in which four other persons, now dead, had set on foot. These four individuals are Samuel M. Kier, of Pittsburg; Louis Peterson, Sr., of Tarentum; Thomas Donnelly, the late Pittsburg banker, and E. L. Drake, of Titusville. The group of gentlemen first mentioned will be permitted to tell their own stories, the only interruptions I venture being to break their recollections into two or more parts, occasionally, so that a natural sequence may be observed in the whole.

Sam Kier Used Oil as a Medicine

By this plan a wealth of details appears in print for the first time upon a subject of the utmost importance to Allegheny county. I am aware that Samuel M. Kier has by no means passed out of the recollections of Pittsburg business circles, in which he moved as late as 1873. I am also fully aware that whenever you mention, in the presence of some of the older residents of this county, the fact that Drake's oil well near Titusville, in 1859, you will be told: "Pshaw! Why, Sam Kier found oil up here at Tarentum long before that. Why, he used it as medicine!"

That much has been a threadbare historical fact known in Pittsburg for all these years, and it is for the reason that so little else has ever been told, beyond that terse boast, that the excuse exists for this article. Fuller details might have entitled the fact to a place in general history.

These strange stories tell considerably more than that. They picture a unique community using Kier's petroleum for illuminating purposes before he began selling it for medicine—describe the old accident which demonstrated its combustible nature—make public for the first time the inwardness of two visits which E. L. Drake made to Tarentum—prove how Allegheny county genius alone made it possible for Drake to bore that celebrated well in the upper county—recount the pioneer experiments in refining the oil at Pittsburg—finally, they tell of a shaft in Allegheny county which was dug hundreds of feet into the earth in search of oil.

After Oil With Pick and Shovel.

Digging for petroleum with pick and shovel! How fabulous that sounds to-day! Yet it was the actual climax to a chain of remarkable events which began with the boring of a salt-water well by means of a foot-tread, right here in Allegheny county, upon a little strip of ground which must forever be historic.

John Kennedy, Sr., of Tarentum, is now 88 years old. He is familiarly known among the townspeople as "Grandfather" Kennedy, though his great-grandchildren are by this time well advanced in the public schools. Mr. Kennedy says:

"In about 1835 I built a derrick a short distance below here for Louis Peterson, Sr. He was going to sink a well for salt water with which to operate a salt works. Yes, the derrick was a much less expensive affair than the rigs over oil wells to-day. Although 50 feet high, it only cost Mr. Peterson about $30. The lumber was very cheap in those times, you will understand. Out of that sum I got $16 or $18 for my work in carpentering the timbers.

"About the same time I built another derrick for a salt well which was bored by William Donnell and Jacob Staley. They sold the well to Thomas Donnelly, whom I believe afterward was a well-known banker in Pittsburg. Adjoining these properties was the Thomas Kier place. I built the derricks for the two wells upon it also, the last one being in either 1841 or 1842. Thomas Kier had two sons, Samuel M., and James. This group of wells turned out large quantities of salt, which was shipped to Pittsburg on the canal and the industry was regarded by us as important."

How the Old Wells Were Sunk.

Two other residents of Tarentum give information about the queer method of boring these early wells:

John V. Humes—"The Staley & Donnell well was on my father's property. It was a four-inch hole sunk by treading with foot. The steam engine had not yet been attached to a drill. The wells up to that time, which included the Peterson well, had been bored by foot also. But after Thomas Donnelly leased the Stanley & Donnell well he attached an engine and reamed it out to a six-inch hole."

John W. Staley—"My father boiled salt at the works of the Kiers and the others. When a boy I was around the salt works much of my time. The wells were not then fitted with the iron casing which oil and gas wells have in these days. Its place was taken by two crude devices, viz: the "seed-bag" and the "tallow bag." The seed-bag was a sort of cloth pouch filled with flaxseed, which was let down along the wall of the hole to shut off the fresh water from the salt water. The other contrivance was for wells in which there was an offset. It was a bag about four feet long made out of muslin, wrapping paper or rags, and well greased with tallow."

Where the Salt Wells Were.

Mr. James Kennedy, of Tarentum, a son of the venerable gentleman first interviewed above, fixes the location of the Tarentum wells a little more definitely. He says:

"The Thomas Donnelly well on the Humes property, the two wells on Thomas Kier's place, and the Louis Peterson salt well were all on a strip of land above the canal (now the West Penn Railroad tracks) about a mile below Tarentum station. Less than half a mile included all the wells. The site of the Kier wells is now occupied by the machine shop or blacksmith shop of the Pittsburg Plate Glass Company at Creighton.

"Thomas Donnelly, who, as President of the Fourth National Bank in Pittsburg, died only a few years ago, had been boiling salt with Thomas Kier up along the Kiskiminetas river, which was the great salt basin of those days. Getting the idea that there was salt water in paying quantities down here, he started a works here about the same time as Louis Peterson, Sr., father of the ex-Mayor of Allegheny City."

"Grandfather" Kennedy had a whole week in which to stimulate his memory before I went back to him. Rubbing his eyes, as though waking up from a pleasant dream, he smiled, and said:

A Mysterious Fluid Appears.

"Bye and bye, that salt well of Louis Peterson's, over which I built the derrick, astonished everybody by bringing up a dark colored greasy stuff. It had never been seen in salt wells up the Kiskiminetas, they said, and they were afraid that it might ruin the salt works here. It just came right up and out of the ground along with the salt water as it was pumped by the engine. It got to be a nuisance, for we were after salt water then, and didn't want anything else. Yes, this fluid appeared several years after the well had been pumping salt water uninterruptedly. Bye and bye the other wells here also got to throwing the ugley grease. It was called 'rock oil'."

Mr. F. N. Humes is one of the best known citizens of Tarentum. He is hale and hearty, and oddly enough, is still active in oil and gas prospecting business. He says:

"It was in 1844 or 1845 before petroleum appeared in the product of the Peterson salt well. I was working down at the salt works then, driving and doing general work, and remained there for several years. The dirty grease that thus came up from the well with the salt water annoyed us for a time very much. We pumped the water into a tank, and there the oil would gather on the top, enabling us to draw off the water underneath. But after awhile—in the winter, I think—some of the petroleum, or 'rock oil' as we only knew it then, got into the salt vats and threatened to injure our apparatus as well as the finished salt, and Mr. Peterson gave orders to run the tank over the next time so that the oil could not possibly get into the vats. We did this and the oil, which in that way flowed over the sides of the tank, ran into the canal."

Canal Men Complained of the Oil.

It would be anticipating to introduce at this point the story of absorbing interest which ex-Mayor Peterson related to me in Allegheny the other day, but one brief clause of what he said is apropos just here. He observed:

"When this petroleum was first found in my father's salt well along about '44 or '45, he had no idea of its commercial value, nor indeed did any of the people hereabouts until a year or so afterward. They at first called it "rock oil." It was a worthless grease in their eyes, but it was a great curiosity also. Grease is a fat, and that the rocks down in the earth could throw off fat seemed incomprehensible to many. Indeed, petroleum has been well named "the fat of the land." Father let the stuff go to waste, running it off into the old canal, and sometimes into an old cistern below the canal, from which the oil overflowed into an ancient pond, leaving us the salt water."

John V. Humes, of Tarentum, is a brother of the other gentleman of that name quoted above. He says:

"The oil was wasted for a long time, and when the Kier salt well, a year after the appearance of oil in the Peterson well, also began to produce oil, the quantity of grease flowing into the canal was quite large. The boatmen got to complaining about it. I have heard them myself. They said it greased their tow-lines, making the ropes hard to handle, besides soiling the sides and decks of their canal boats."

A Conflagration and Its Results

About this time a startling episode created much excitement about the salt works of Tarentum. It is well described in the following statements:

F. N. Humes—"One day the boys in the neighborhood threw a burning brand into the old canal, and there was an astonishing result. The whole canal, for a distance of half a mile or more seemed to burst into flames. It was a very odd sight—looked like the water burning, you know. But we quickly understood the trouble: it was the oil that we had allowed to run into the canal that had taken fire. It burned furiously. I remember it well, for we were afraid that a copper shop along the side of the canal, in which the Kiers made barrels for salt, would be ignited from the flames. Most of the people in the vicinity came running down to the canal. We could do nothing but just let it burn itself out, protecting adjacent property. But, sir, it demonstrated one valuable fact to us, and that was that this greasy stuff that was bothering the salt works would undoubtedly burn, and that it would make both light and heat."

Grandfather Kennedy—"The fire on the canal gave the men around the salt works an idea. Some of the oil was collected after that from the salt water and given to the miners who supplied the salt works with coal from neighboring pits. They filled their little lamps with the stuff, and began burning it that way. They said it filled the pits with smoke, but as it burned easily, and cost them nothing, they were willing to use it for illuminating purposes when it saved them from buying lard which they had been using."

The First Coal Oil Lamp.

John W. Staley—"After the fire on the canal the coal diggers used the oil for lighting the pits, and then some of the people tried it in their houses. Although I was but a boy, I distinctly remember the experiment my father made with Jimmy Kier. They brought some of the oil to our house and put it in one of the old-time coffey-pot tin lamps in which we had been accustomed to burn simple lard. Whew! How that lamp did smoke that night! But it made a fair light, and we kept on burning it."

And then almost everybody living in the Tarentum got to going down to the salt wells and bringing away a lot of the dirty petroleum, with which they filled their little tin house-lamps. At least a score of men and women are yet living in Tarentum who, as I interviewed them, invariably commenced with the words: "After the fire on the canal," etc. Then they told me of the horrible smoke the oil made, and the unpleasant smell that came from it. The lamps were small tin affairs, with the spout protruding from them, resembling somewhat a coffee pot. This was before lard oil had been generally introduced, and the housewives had been accustomed to putting several tablespoonfuls of common lard into these, and then slipping a wick, made of rags, down through the spout until it penetrated the lard. Thus it burned without chimney and without any modern fixture for regulating the size of the flame.

John V. Humes—"Into these lamps we put the crude petroleum. My wife, over there, can tell you what a terrible smoke it filled our house with, just after we married, but we put up with it and kept on using the oil because it cost us nothing, and the lard did cost something. The lamps were fitted with a wire at the back, by which we could hang them up anywhere, either on the wall in the house, or to posts at corn huskings and shellings."

It was a unique spectacle, this village using crude petroleum to light their homes and shops in 1846-47. William Kennedy, of Tarentum, another son of "Grandfather" Kennedy, when a young man, was employed about the salt works also, and was so intimate with the owners that he married a sister of Samuel M. Kier. He gives, perhaps, the most definite information of how his neighbors got the idea of burning petroleum in lamps. He says:

"The fire on the canal occurred at an opportune moment. Just about the same time one Dennis Martin had been making some suggestions about salt works, urging a trial of the dark-colored oil for fuel and light. He was just such a genius as you will find in every rural community—a sort of jack-of-all trades. He had tried throwing into the furnaces in the works a bunch of rags greased with the stuff, and tried to prove that it burned more fiercely. Samuel M. Kier knew of Martin's speculative talk, and, indeed, Kier himself had some idea of experimenting with the oil that was now being pumped out of his well, seeing no good reason why it, like other grease, would not burn. He had actually begun some inquiries among people about lamps in which to try it, when the boys set fire to the accumulated oil on the canal.

The Canal Fire Was the Starter.

"This canal fire brought both the ideas of Kier and Martin to a head. Martin suggested dips from the oil for the coal diggers and induced them to try it in their pit lamps. Kier and his brother experimented at once with the tin lard lamps, and the result was that people here in Tarentum generally introduced the oil into their houses as an illuminant. Mrs. S. M. Kier, after a while, had heavier lamps made for burning the oil in houses—that was in 1848, I think—but it was some years before a chimney for them could be found."

There is a vague tradition of a mineral oil being used in 1826 for an illuminant in dwellings and shops along the Muskingum river in Ohio, but there have never accompanied it such authenticated statements as Tarentum here produces. Petroleum is said to have been known along the Muskingum as early as 1814. But as for that, there is no question that it was used by the Indians when they inhabited Pennsylvania. It is not so much a question as to when it was originally known, as it is where and by whom it was first put to commercial uses.

Good for Man and Beast!

F. N. Humes—"The Kier salt well began producing petroleum in 1846, I think, or about a year after the oil from the Peterson well had been going to waste. From the first, Samuel M. Kier became active in trying to discover means to turn the new greasy fluid to some account. He was engaged in business in the city, but came up to his father's house here frequently, where I stopped much of the time I was employed about the salt works. Although people up here got to using the oil in their lamps, S. M. Kier believed it was capable of other uses too. He consulted medical men, and at length he decided that the oil really possessed medical properties. He had all the oil product of the Kier salt well sent down to him at Pittsburg, where he bottled it and put it upon the market as 'Kier's Rock Oil,' or 'Kier's Petroleum,' and he advertised it extensively as good in either internal doses or external application.

"In two or three years the business of selling this as medicine had so increased on his hands that he made an arrangement with Louis Peterson, Sr., to secure the entire oil product of his well also. In 1847 or 1848 the Kier well was producing about one barrel of petroleum a day, and the Peterson well about two barrels. From a worthless stuff that was for two or three years allowed to run to waste in the canal, Kier's efforts to give it a commercial importance eventually raised it to a value financially, right here at the wells, $7 and $8 per barrel, and that, too, long before Drake had been heard of with his Titusville venture."

A Market for Petroleum Butter.

John W. Staley—"Wasn't it in 1849 that the gold fever broke out in California? Yes, I thought it was, for I remember that Mr. Kier sent dozens of his little boxes of "petroleum butter" away to California in that year. "Petroleum butter" was the buttery-like stuff that oozed up from our salt well on Kier's place with each stroke of the sucker rod. It was formed by the petroleum getting in the iron parts and churning from the friction of the machinery. Mr. Kier had us scrape this off the iron each day and send it to his place in Pittsburg. There it was put up in little boxes and sold for burns, scalds and bruises—and I tell you it was good for them, too.

"The 'rock oil' which he sold in bottles for medicine was simply the crude oil of to-day, though there is no question that that found in the Kier well was of the very best. I have taken many a dose of it inwardly, and, sir, if you ever get a bad cold in the chest, there is no better remedy to-day than to soak a flannel cloth with crude petroleum and lay it across your breast. Try it some night. In those days everybody up here in Tarentum used the Kier oil for medicine, and I'll bet you will find plenty of persons still living here who yet believes in the virtues of petroleum as a medicine. I am never without half a barrel of crude oil now in the house, and it is my standard remedy."

The First Find Was of the Best.

James Kennedy—"The petroleum that was found in Tarentum between 1845 and 1856 was of the very finest grade. That in the Kier and Peterson wells averaged 70 per cent of purity, and that subsequently taken out of the Donnelly well averaged as high as 90 per cent. This may better be appreciated by comparing it with the petroleum afterward produced in Northern Pennsylvania, which I think, only averages 33½ per cent."

Louis Peterson, Jr.—"S. M. Kier paid my father 50 cents a gallon for the oil from his well. As our well produced from two to five barrels per day, these 200 gallons at 50 cents a gallon made a nice profit. Kier made the oil known all over the United States. Undoubtedly he made a paying business out of it. Yes, the oil from the wells of Kier and my father was of unprecedented purity. It only contained about 1 per cent of naphtha, and was of a good wine color."

William Kennedy—"Mr. Kier was the first man to give petroleum a financial and commercial value. He sold it as medicine in 50-cent and $1 bottles, and it became very popular all over the country. I firmly believed in its medicinal properties, and I do still. There are many persons still living here in Tarentum who use crude petroleum as medicine, as you no doubt discovered in your investigation this week. I was in charge of Kier's store at the salt works at the period when the rock oil medicine was most popular. At that store I have sold it as high as $1 per gallon. The farmers became accustomed to driving down there every time they come to Tarentum, in order to buy a supply of it. They were very friendly to oil, because it was of value as medicine in many ways on the farms. As late as 1856 and 1857, I have sold it at $1 per gallon."

First Law Suit Over Petroleum.

"Understand, these high values did not come solely from its value as a medicine, but as an illuminant for houses also, for by 1857 Mr. Kier had also introduced it to a considerable extent through a burner for lamps which he had invented. So valuable did petroleum become through the agency of this ingenious Pittsburger, that after he got sole control of the Peterson well, Louis Peterson, Sr., commenced proceedings in the courts at Pittsburg to compel S. M. Kier to pay him a royalty, or divide the proceeds from his own sales. George P. Hamilton, Esq., was Kier's attorney, and A. W. Loomis was Peterson's. It was rather a noted case, because it proposed to test the limitations of a lease. Leases up to that day had been made for salt-water alone, this mineral oil never having been thought of. Peterson contended that it being found without any previous knowledge on the part of either side, the owner of the land had a right to share in the proceeds in spite of the fact that such a mineral was not mentioned in the lease or sale."

John V. Humes—"When my father leased property to Staley & Donnell to sink a well upon, near where the Kier well was, he wrote the lease in these words: 'As long as water runs, and grass grows, these two men have the right to the salt water that may come from the ground there.' There was no reserve to anything but salt water. He knew nothing of any such thing as petroleum, and his sole royalty for years afterward was each twentieth barrel of salt, or rather the proceeds from every 1 barrel in 20. By and by Thomas Donnelly, who had bought the lease, sold it to Louis Peterson, Jr., who bored it deeper for oil. He paid us—Donnelly and my father—$40,000, which was regarded by us as an immense price, but imagine our feeling of personal loss when a few years later Peterson sold the property to Eastern persons for $150,000. That's what come from us not knowing the value of this new grease."

And it is quite true that even to this day nearly all the old quarter in the thriving town of Tarentum uses crude petroleum for medicine in some shape or form. I have heard of it in many households up there—in fact have been presented with a flask of it for my own personal trial and satisfaction.

PART II

No doubt it was the marketing of petroleum as a medicine that separated Hon. B. F. Jones, the prominent iron manufacturer, and S. M. Kier, in a business way. They had long been associated. The first employment B. F. Jones ever had was obtained in the Pittsburg office of the Mechanics' Line of canal boats between this city and Philadelphia, with a branch office line to tidewater at Havre de Grace, Md. Mr. Kier was one of the chief owners of this line, and his attention was attracted to young Mr. Jones by his business tact and alertness, and he took a keen interest in his advancement.

Kier subsequently made Mr. Jones his manager and then partner. At one time Hon. James Buchanan was a member of the firm, being associated with Messrs. Kier and Jones before he became President of the United States. The business enlarged to include various branches.

B. F. Jones in the Iron Business.

Mr. Jones' tastes did not run along the line which Mr. Kier's petroleum developments now took, and the former went into the iron business in 1851, with which he is still identified. But, notwithstanding their separation at this period, Mr. Jones realizes how much he owes to Mr. Kier for his early business training, and he says he cannot speak too highly of the man who was one of Pittsburg's best and most enterprising citizens. Mr. Jones says:

"Talk about the discovery of petroleum in 1859 in Venango county! Why, it was in 1846 that Mr. Kier began to think of using it as it came out of his well up at Tarentum, in Allegheny county. He knew it had some commercial value, and he was untiring in trying to have its usefulness generally recognized. And then you know, perhaps, he was the pioneer in refining oil. His experiments along that line right here in Pittsburg were most valuable to the great oil industry that was to come. He was the first person in the United States to refine petroleum and so clarify it that it made a steady, clear and clean illuminant. Had he taken out patents on the apparatus he then designed for refining oil his heirs to-day would be among the richest persons in the world. Think of what a royalty on all the oil to-day refined in the world would amount to.

Mr. Kier's Neglected Opportunity.

"There is no reason why he should not have done it. I believe his oil-still is still in existence, and it would show what a priceless principle he discovered before others had thought of it.

"But to protect his discoveries through any personal or selfish motive was not in S. M. Kier's nature. He was of a most generous spirit. Indeed, I have sometimes thought that he did not go into the business of selling oil as medicine so much on genuine speculative objects as he did from a philanthropic standpoint. He believed he was taking from the ground a fluid which possessed great medicinal qualities—believed that it was a sort of boon or benefit for mankind—and he doubtless wanted to let humanity have the benefit of it as much as he did to make money for himself.

"He was always willing to reach forward a hand to help others, and he regarded wealth as a means to further develop the great resources of the country, and certainly his foresight was great in the matter of oil and oil refining. He won a reputation here in Pittsburg for charitable acts, and they were generally of philanthropy in the widest sense."

What Suggested Kier's Experiments.

Charles Lockhart, as one of the Pittsburg officials of the Standard Oil Company, has handled millions of barrels of petroleum, but it is safe to say that he thinks less of their aggregate worth than he does of five or six barrels which, away back in 1852, he sold to S. M. Kier, at Pittsburg. The story Mr. Lockhart tells fits right in here. He says:

"What I tell you will make you readily understand what suggested to Samuel M. Kier the idea of refining petroleum. Across the river from Tarentum, there was a well that had been sunk originally for salt water. It had been producing that article for several years, when, along about 1852, it, too, began to pump up petroleum with the salt water. A man named Isaac Huff operated the well, and I was clerking in Pittsburg. Huff brought the oil to me, and I bought it from him, turning right around and selling it to Mr. Kier on my own account. In the following year I took Mr. Kip, of Tarentum, into partnership with me, and bought the Huff well, we running it as our own. Then I entered into a new contract with Mr. Kier, and here is the account I opened with him."

And Mr. Lockhart produced a small timeworn little account book, in which there runs from page to page entry after entry of oil sold to S. M. Kier. On the 19th of March, 1853, there is credit given Mr. Kier for $174.69 for seven barrels of oil, or 62½ cents per gallon. How's that for prices? What a moment for a bull ring!

Six Years Before Drake's Enterprise.

And this, too, only seven years after Kier had ventured to put the greasy stuff on the market, and fully six years before Drake got down to solid work on Oil Creek. One after another I perused the items in this book. Once I find Mr. Lockhart receiving 66⅔ cents per gallon. Is it any wonder that the petroleum magnate smiled over the pages of this little book, and at the same moment pushed aside a clearance sheet, on which, perhaps, was written the record of 6,000,000 barrels. Mr. Lockhart resumed:

"When I thus began selling Mr. Kier my oil he found that he had more than he could market as medicine. Mr. Kier knew that it had a certain value also as an illuminant, but to make it entirely successful in that line it would have to be in some other than its crude state. With a surplus of petroleum on his hands, therefore, he got the idea of putting it through some process which would separate the medicinal part of it from the other, or, in other words, to clarify it in some manner so that he might sell it both as an illuminant and medicine. He went to Philadelphia and consulted a chemist there. The chemist suggested distilling the petroleum, but offered no hints as to apparatus, I believe. Mr. Kier came back to Pittsburg and entered into some experiments.

The First Petroleum Refinery.

"The result of them was that he set up a small refinery on Seventh avenue, above Grant street, where he commenced to distill the petroleum. At first he used a one-barrel still. After this he enlarged this to a five-barrel still, and I believe this is yet in the possession of his sons, who hold it as a relic of the origin of a world-wide industry. Mr. Kier's business in refining oil from that time on was eminently successful. His claim to being the first oil refiner in the country cannot be disputed, though I hear some man in the East has been trying to do that lately."

Mr. John T. Kirkpatrick, who lives on Fortieth street, Pittsburg, is at present the principal owner in the Leechburg Iron Works. He says:

"I was in partnership with S. M. Kier in his oil refinery on Seventh avenue. He was the first man in the country to appreciate the value of petroleum, and he was the first man to purify it by the ordinary refining processes. Although they might seem small now by comparison, our operations then in that five-barrel still we considered quite large. The refinery was subsequently removed to Lawrenceville. After Mr. Kier began refining the petroleum, it was used to a considerable extent in Pittsburg for illuminating purposes. Mr. Kier had been investigating that subject all the time, and finally he invented a lamp-burner that would fit any kind of a lamp, and which was put on sale in Pittsburg. This was a burner with four prongs, so arranged to let in the air and give a good clear light."

William L. Kier, a son of the late S. M. Kier, has a place of business at present on Liberty street, near the Union Depot. He says:

The First Still was Stolen.

"The five-barrel wrought-iron still, in which my father refined oil before any other person had ever thought of such a thing, is still in our possession. We preserve it as a curiosity, and it is to be seen out at our fire-brick works in Salina. No, it is not the first still father used, but the second. There is a little story as to why we have not got the small cast-iron still he first experimented with. After he had been refining oil for some time on Seventh avenue, people up there got afraid that the petroleum was too dangerous stuff have around in a thickly-built-up section. They feared explosions and fire. Finally, the City Councils gave father notice to move his refinery outside the city limits.

"Arrangements were made to move the refinery out to Lawrenceville, which then had not yet been absorbed by the city. The apparatus and machinery had been set out on the pavement to await wagons, and when, sometime later, investigation was made, it was discovered that the small cast-iron still had been stolen. Although he was using the five-barrel still at the time, father held his first still as very valuable, and a search was made in all the junk yards for it, but without success. We have never heard of it since.

"No, I don't think father ever thought seriously of taking out patents on his refining process. On a subsequent visit to the chemist at Philadelphia, the chemist remarked upon hearing of the success of the experiments: 'We missed it by letting this thing slip.' You can safely say that carbon oil must have been made by distillation by my father along in the forties, for we have papers showing sales of it in 1851."

Drake Comes to Tarentum for Pointers.

To return, now, from the little Pittsburg oil refinery to the village of Tarentum, is to suddenly stumble across a revelation, startling because it is not generally known, and important because it very materially changes the face of petroleum lore. Three persons tell me the story, each at a different time, neither knowing that the other has touched upon it in their respective narratives. Thus, each confirms the statements of the other. Listen:

F. N. Humes—"In 1858 I was cleaning out the salt wells at Tarentum, when a man came to me, giving his name as E. L. Drake. He said he had come down to Tarentum to see the manner and mode of drilling wells, especially those wells which were at that moment producing oil. It is an old tradition how the Indians used to gather oil from the springs along Oil Creek in Venango county by soaking their blankets in the water and then wringing them into buckets. The oil got the name of Seneca oil in this way, I believe. Well, after Mr. Kier got to bottling the petroleum in Allegheny county for medicine, some Eastern people thought they would resort to the old Indian fashion of gathering the same kind of oil on the surface of Oil Creek and its neighboring springs in Venango county. These Eastern people made 'oil of spike,' horse liniments, etc., out of this. It was some such venture by Eastern people which brought E. L. Drake into Venango county about this time.

To Get a Driller for Titusville.

"Drake got the idea that if the oil came up into these springs from the earth, he might get in larger quantities by boring a hole into the ground. He was unable to succeed, however, and finally concluded to come down to Tarentum and see how we did it here. He impressed me as agreeable enough, and he remained with me at my work around the wells all that day. Then he asked me, if he paid me good wages, if I would go back to Titusville with him, and bore a well for him there.

"Now, I had a contract with Mr. Peterson at the time to clean these salt wells out, and I could not have broken it if I would. I therefore declined Mr. Drake's offer, but said that all our tools for the wells were made by a blacksmith just below Tarentum, named William Smith, and that he might get him to make the tools for him, and possibly go with him to Titusville to drill the well which he proposed putting down. He went to Smith, and in the following year that individual made all the tools here in Tarentum, taking them with him to the upper county, and boring Drake's well for him in the summer and fall of 1859."

More Testimony as to Drake.

William Kennedy—"I was in charge of some department of Kier's salt works at Tarentum along about 1858 or 1859, when this man Drake, who is erroneously given the credit generally of discovering petroleum, came down there to see how the work of boring and pumping oil wells was performed. He coaxed William Smith, our blacksmith here, to make tools for him and go up to Titusville to bore a test well for him. Smith made our saltpans as well as tools for the wells, and we liked him as a faithful workman, building him a new shop; but the offer he received from Drake was so much of an inducement that we could not keep him, and he went up the river. By and by Smith sent us reports about oil up there that seemed fabulous."

Ex-Mayor Louis Peterson, Jr.—"This man, E. L. Drake could not have bored his famous oil well near Titusville without the aid he got from Allegheny county. I was managing my father's salt works, besides producing oil myself there, when, in 1858, Drake drove up to our works in a sleigh. He had driven clear down from Oil Creek. He said he had tried to sink a well up there in search of oil, but the hole caved in on him, and he did not know what to do. He wanted some help from us, but I thought him visionary and put him off. He looked around among the wells at Tarentum, and finally made Smith, our blacksmith, an offer to make tools like he made for our wells, and go back with him to Venango and Crawford counties. Smith promised to consider the matter. Now, this man Smith was in some litigation at the time, and I told him that this was a good chance to get away from this part of the country and get rid of his trouble. He said he thought so, too, and that he believed he would accept Drake's offer.

They Found Oceans of Oil.

"Along toward spring of 1859 Drake drove back to Tarentum in a sleigh and got Smith's promise to go up to Oil Creek. Now, Smith was an ingenious fellow, a jack-of-all-trades, and prided himself on his workmanship, and when he told me he was making the tools for Drake's venture I never felt anything else than sanguine of success up there. But some months after they got down to work on the first

Drake well, I got a letter one day from Smith—late in 1859—which opened with these words: 'For God's sake, Mr. Peterson, come up here. There's oceans of oil.'

"Well, perhaps if I had 'gone up,' as Smith advised, I would have been better off to-day. Smith also wrote advising other Tarentum people to come up and lease land near Drake's well. Some took his advice. James Kier and William Donnell were the first to go, and Samuel M. Kier himself followed. I believe they all made more or less money.

"Dr. F. B. Brewer, of Pittsburg, owned property near Titusville, on which he knew springs of 'rock oil' existed. In 1853 he received a letter from George H. Bissell inquiring about it. Dr. Brewer assisted him with valuable information. As the result of this correspondence Bissell & Eveleth formed a partnership to collect this oil from water in trenches which they dug on land that they leased near Titusville. In 1855, Bissell & Eveleth sold a third interest in this lease to some New Haven capitalists, and the 'Pennsylvania Rock Oil Company' was formed. It was this company that in 1858 employed Colonel Drake, of New Haven, to try to sink an artesian well."

Digging for Petroleum!

These early oil developments at Tarentum terminated in perhaps the most daring venture ever undertaken in any oil region. It is described by ex-Mayor Peterson as follows:

"While managing my father's salt works at Tarentum, I became impressed with the growing value of this petroleum or rock oil as we called it. Through Mr. Kier's ventures the oil had become worth anywhere from 50 cents to $1 per gallon. I concluded I would improve any opportunity thereafter of getting oil myself. At this time Thomas Donnelly was operating the salt well on the Humes farm, not far from our own property. Peterson & Irwin, of which firm I was a member, determined to buy the well. It was only producing salt water, but I reasoned that if it was enlarged to the size of the other wells there it too would pump up petroleum. But as we proposed improving it and pumping for oil, a serious question arose, viz: whether in letting the salt water run to waste, as we proposed to do, we would not violate the terms of the Humes lease which we were buying from Thomas Donnelly, and lay ourselves liable to forfeiture by reason of Humes receiving no royalty, his sole royalty being every twentieth barrel of salt water. Therefore, to extinguish Mr. Humes' claim to any royalty we purchased the whole farm. We paid him $20,000 and Mr. Donnelly $20,000 additional for his lease. Then we reamed out the well, enlarging the hole. This was in 1856.

A Demand for Oil at Baltimore.

"Sure enough, oil came, and a very valuable grade of it, too. It produced from two and a half to five barrels per day. We found that a specimen of the oil that had been sent on to Baltimore was very successfully used in oiling the wool made at carding milles there. A demand for it was created in Baltimore. To this city our entire product went. There was a 'middle man,' however, McKeown, Nevin & Co., of Pittsburg. They handled all our oil. This continued until 1864, when we sold the well and property to Eastern people for about $150,000. The 'Tarentum Salt and Oil Company' was organized, the principal stock being held in Philadelphia, New York and Brooklyn.

"This company conceived the idea of digging a shaft into the ground in search of oil and salt water. The Tarentum wells were only from 400 to 500 feet deep, and they argued that it was practicable to get that deep down with pick and shovel, and possibly discover a monstrous cave of the fluids. They selected a spot, probably 100 yards from the Donnelly well. They sent to Europe and brought across the ocean a lot of Cornish miners. These men were taken to Tarentum and set to work. The hole they dug into the ground was about 6x8 feet, and in many places larger.

Cornish Miners Seeking the Grease.

"Two and a half years were consumed in digging this shaft, and $40,000 was spent in the work. Timbers 16 or 18 inches square were walled into the well in the upper part, but when the rock was struck below no wall was needed. Cast iron pipes 8 inches in diameter were inserted to pump out the water, so that the men might work uninterruptedly.

"The Cornish miners at length got dissatisfied and quit work, going off to the copper mines of Lake Superior. An agent was sent to New York, where he gathered up another corps of Cornish miners just over. These worked in the shaft for awhile, but they too gave the employers trouble and had to be let go. Then an effort was made to get deep mine diggers from Scotland, and two of the men who were in a party, James and George Jenkins, are still living up the Monongahela river I believe. It was a huge engineering scheme. Nine men worked in a gang in the shaft.

"I verily believe some great result would have been the outcome of this experiment had it been finished. It had reached a depth of 400 feet, and we all noticed that it had a marked effect upon the Donnelly well. The salt water in the Donnelly well was from 6° to 7° in strength, but it weakened to 3° if the water in the shaft was allowed to stand any length of time. It showed there was some crevice or connection between the two.

An Enterprise Spoiled by the War.

"The digging of the shaft was finally abandoned in the darkest period of the war from the necessities of the time. A New York man named Ferris, and William McKeown, of Pittsburg, bought the property, shaft and all. The daring piece of engineering was neglected, and finally it commenced to fill up with cinders and dirt, until at last it was level again with the surface of the ground. You may walk over it to-day and I could point it out to you if I was up there. Dig it out and you will find those cast iron pipes and timbers still there, just as they were originally put in."

Mr. Peterson's story brings one point out pretty clearly, and that is that he went to work improving the Donnelly well in 1856 for oil exclusively. That is important to remember in view of the statement sometimes made in Drake's behalf, that if he was not the discoverer of petroleum after all, he was the first man to sink a well solely for petroleum. He did that in 1859. Louis Peterson practically did it in 1856!

It should be stated that some persons in Tarentum say the real reason why work in digging the big shaft was discontinued was because natural gas was encountered and it flowed into the well so freely that all laborers became afraid to stay down in it any longer.

Virtue of the Grease.

In this connection a clipping from a prominent French publication which has lately been going the rounds of the American newspapers is interesting. It is as follows:

"Dr. Blache states, in the Bulletin de Therapeutique, that a refiner of petroleum having been prohibited by a prefect the distribution of petroleum in medicinal doses, the fact led to an inquiry being made as to its alleged utility in affections of the chest—the native petroleum from Pennsylvania and Virginia being that first experimented with. Dr. Blache states, as the result, that in chronic bronchitis, with abundant expectoration, it rapidly diminishes the amount of the secretion and the paroxysms of coughing, and in simple bronchitis rapid amelioration has been obtained; its employment in phthisis has been continued for too short a time as yet to allow of any opinion being delivered as to its efficacy beyond the fact that it diminishes expectoration, which also loses its purulent character. The petroleum is popularly taken in doses of a teaspoon before each meal, and, after the first day, any nausea which it may excite in some persons disappears."

And, now, these different thoughts and reminiscences inveigle still another into the mind of every intelligent reader, viz:

Hadn't that monument better be erected over S. M. Kier's grave in Allegheny Cemetery?

The Story is Dramatic.

So, here is a group of men still living who once called this useful petroleum "a mysterious grease"! They remember handling it when it had no commercial value. They either aided or watched the progress of a Pittsburger who sought to give it a commercial name and a marketable value. That man's associates have been recalling those curious days in these memoirs.

This group of Allegheny county people watched it run to waste at first. Then they remembered paying $1 per gallon for it when a Pittsburg man had made it known pretty well all over the United States. They recall Drake's visit to Tarentum, and tell of the aid he procured there. They hold their breath when they think of the gold that changed hands in Crawford and Venango counties after William Smith, of Allegheny county, bored the test well up there for Colonel Drake.

Then this group of men watched the flow of petroleum as it set out toward Europe in exports. They will tell you how 40 casks of it were sent to France in 1860 as a curiosity, but how 3,940 casks went from Pennsylvania to France in 1863 as a commercial adventure. Since then they have seen this same "mysterious grease," that used to flow into the Pennsylvania Canal at Tarentum—they have seen it grease and light the whole world from Egypt's pyramids to Paris' salons. In 1888 some genius attempted to tell how many oil wells had been bored into Pennsylvania's bosom. He said there had been 57,000 such holes put down, and about 400,000,000 barrels of oil taken out of Pennsylvania's loins. Let him try it now, since the Washington, the Shousetown, the McDonald fields have been added, and he would probably give it up.

A Half Century of Growth.

Thus, have this group of men lived to see their four salt-and-oil wells of Tarentum multiplied beyond calculation, and the "odd mysterious grease" bubbling over the most immeasurable calculations in barrels!

Do the gentlemen composing this group occupy a position dramatic in the marvelous events their memories review?

Well, if they do, it might be impracticable for them all to attend the Columbian Exposition at Chicago. But if the public of Allegheny county appreciates the wonderful growth of a famous industry which these stories prove Allegheny county to have originated, why should they not send to the World's Fair some relics of the start of the oil business. For instance, the still with which Mr. Kier refined oil is still in existence. Mr. Lockhart's little account book, which shows that he sold petroleum as a marketable commodity six or seven years before Drake began his well, is in the Standard Oil Company's office, on Duquesne way, at this moment. Mr. Peterson, who at present lives on North avenue, Allegheny, can no doubt add documents of interest involving his operations in searching for oil exclusively as early as 1856.

What a notable feature it would all make in the Pennsylvania exhibit at Chicago!

12. THOMAS MELLON'S RECOLLECTIONS OF PETROLEUM IN WESTERN PENNSYLVANIA

The publication of L. E. Stofiel's articles on Kier's pioneering work as a refiner stimulated Thomas Mellon of Pittsburgh to write for the newspaper his recollections about the collecting and marketing of petroleum by the Indians, its use as a medicine, and the appearance of petroleum in the salt wells. Mellon's account, which appeared in *The Pittsburgh Dispatch,* August 14, 1892, is as follows.

I am unable to give exact dates, but it was at and shortly before the beginning of the present century, and covering a period of some 15 years, that excursions of Cornplanter Indians were in the habit of visiting Pittsburg once a year from their homes up the Allegheny. They came down the river a dozen or so canoes at a time, and after disposing of their furs and other specialties, among which was always some petroleum, and going on a drunk for a day or two, they would disappear again. Their petroleum packages were various in shape and quantity. Some of the oil was in gourds or calabashes, some in pieces of hollow logs fashioned into kegs. And after a time it was often brought in small kegs of regular make, which had been taken home by them on former visits containing whisky or molasses. It was called Seneca oil. Certain of the merchants took it in exchange for goods and kept it on sale in quantities to suit purchasers, as it was in much demand, a kind of universal panacea, especially as a salve for burns and scalds and wounds or sores of any sort. It was also taken inwardly for many ailments.

Carried Over the Mountains.

The surplus of the oil not disposed of at retail was transported over the mountains by the usual methods of the time, pack-horse or wagon. The wagon only superseded the pack-horse as the clay roads were improved. It was before the time of turnpikes or macadamized roads. And I may mention here that the demand for oil at the East was not so great as to justify transportation on its own account. But there were few products of any kind to send eastward, and the pack horses often went East without a load, as they had to go anyway, because all the salt and some other necessaries of life used west of the mountains in this region had to be brought from the East at that time.

The above information was derived chiefly from my mother-in-law, Mrs. Anna B. Negley, who died several years ago at an advanced age, and was a girl of some 15 years at the time of these Indian visits, residing with her parents on Water street, and I have no reason to doubt the accuracy of her statement, as I heard them often from her own lips with minute particulars and have heard them corroborated by many old people whose memory went back to the time referred to.

She used to relate also many interesting incidents of the Cornplanter Indians and their methods of dealing and habits and customs, and the disturbances they sometimes created during their annual visits to the town, although they were always regarded as friendly and not dreaded as hostile savages. But such incidents are not relevant to the purpose in hand. She described the Seneca Oil thus obtained as a common household article at the time, and recognized it by its odor as an old acquaintance when its use was revived many years afterward by Mr. Kier.

How the Indians Got It.

The Indians had often described how they got it by skimming it off the surface of little pools which they constructed at certain wells where it appeared, and often by forming pools in the sand bars of the small streams, in Oil Creek especially. Mrs. Negley's daughter, Catherine, an old lady of the East End, yet living, has also a clear recollection of particular instances of the application of Seneca Oil by her father to cure wounds and bruises and other ailments of both men and animals previous to 1826, the time of his death.

Another circumstance may be mentioned: The information from the teamsters who transported it over the mountains was to the effect that it was shipped from Philadelphia or Baltimore to England. Baltimore was the most convenient point of transportation then and Pittsburg had more commercial intercourse with that city than with Philadelphia at the time. In England it was said to be purified or refined in some way and other ingredients added to it, because a good deal of it was returned from England to this country in small bottle packages under the name of British Oil. The time is within my own memory when British Oil sold here in the drug stores.

What follows is of my own personal knowledge, and goes back to the period of 1825 or 1826. It was shortly before the slackwater improvement of the Kiskiminetas by the State for the Pennsylvania Canal, and several years after the commencement of salt manufacturing at or near Saltsburg on the same river. The town took its name from that fact. Salt was first produced there on this side of the mountains, and its production gradually found its way down the stream to its intersection with the Allegheny and thence down the Allegheny to Tarentum.

A Visit to the Salt Works.

As one well after another was bored farther down and operated for a few years, other wells farthest up the river from it failed gradually in the quality or degree of strength of the water, until finally by the time the salt industry was fairly established at Tarentum it had disappeared on the Kiskiminetas altogether. It lingered last on the Kiskiminetas at Apollo and Leechburg. The Seneca, or rock oil, as it was often named at the time, was pumped up in small quantities with the salt water in many of the Kiskiminetas wells. From my neighborhood in Westmoreland county, about ten miles south of the Kiskiminetas, the farmers were in the habit of visiting the nearest salt works once a year to procure their salt, and on one of these occasions I accompanied my father to the salt works of Mr. Boggs, several miles below Saltsburg. It was either in 1825 or 1826, when I was about 12 years of age. I had never before seen a salt works. Mr. Boggs was exceedingly courteous, showing us all over the works and explaining everything very minutely. The plant, as such affairs are now called, with the operations going on in and about it, were so strange and wonderful to me that an impression of everything was made on my memory which remains clear to this day—the great salt pans or boilers with the boiling water surging in them over the intense furnace fires and the workings of the pump elevating the salt water from the bottom of the well, 1,300 feet below, to the wooden tank alongside the salt pans was a strange spectacle to my mind. But immediately another spectacle presented itself, no less strange but bordering on the ridiculous. Out of a hole in the mill immediately opposite the furnaces came a big dog dragging a small wagon loaded with 10 or 12 bushels of coal and a man blacker and greasier than a negro pushing it from behind. The purpose of all this was soon understood. It was a coal digger with his dog coming out of the mine with his load.

Oil Burned as Far Back as 1826.

But the man had a small lamp dangling from his cap on the top of his head and the lamp was diffusing an odor of such peculiar quality and pungency as to immediately attract our attention, and I have never lost its connection with petroleum from that day to this. Mr. Boggs took great pains to explain it to us, how it came up with the salt water from the rocks below. He took us up again to the tank and showed how he drew the salt water into the pans from a point near the bottom of the tank in order to prevent any of the oil on the surface from getting into the pans, and showed us with a tin dipper how they skimmed the oil off the surface every two or three days; and then showed us two or three gallons of the oil thoroughly separated and by itself in a large tin bucket which he kept for receiving the skimmings of the tank. Then he lit up one of the several tin lamps struck around inside and outside the works in order to show us what kind of light it produced. The light was yellow and showed poorly in the glare of day but the odor was strong enough to indicate something from the lower regions. He explains, "We soon get used to it, and it saves a great deal of tallow. We use it all about the works for light and grease and the men use it in the coalpit and some of them take it home for lighting purposes."

Such was my personal experience with petroleum some 12 years or so before it appeared at Tarentum; and it was well understood all along that it had been known on the Kiskiminetas from the time the salt production commenced there.

I was well acquainted with most of the gentlemen in Tarentum when attention was attracted to it, especially Messrs. Humes, Donnelly and Kier, named in Mr. Stofiel's article. I have had many business transactions with most of them and can heartily approve Mr. Stofiel's eulogy of their character. And I well remember Mr. Kier's refinery on Seventh street just east of the canal and Grant street and his trouble with the neighbors, who did not take agreeably to the smell or get used to it, as Mr. Boggs and his men had done.

It Got Too Cheap for Medicine.

I may also say that from my own observation of its good effect as a salve and for other medical purposes, either in its crude state or as prepared by Mr. Kier, its excellent qualities in that line should never have been lost sight of. The only reason I could ever see for its neglect as a remedy is its cheapness. After Drake's experiment flooded the country with it, it got too cheap to be respected by the doctors or to hold its place on the shelves of the druggist.

As it appears to me that Mr. Stofiel was careful in ascertaining and selecting his facts, and so far as he covers the ground I have nothing to add or alter. His surprise at the wonderful changes in the development and quantity and price and capital invested in producing and handling an article with so small an origin is quite natural. But almost equal changes have taken place in the same time in the quantity, quality and value of all our staple industries, and hardly less has been the change which in the same time has come over the state of public sentiment regarding the social status of the men who venture their capital in such enterprises. When Boggs and Peterson, and Kier and Donnelly and others were establishing and operating salt works and nursing petroleum in its infancy on the Kiskiminetas and Allegheny, and Thomas Bakewell, Christ Ihmpson and Fred Lorenz were constructing and operating glass works, and John Shoenberger, Lyon Shortb & Co. and others were pushing forward in the iron industry, such men were regarded by the people of their day as public benefactors, although they claimed and exercised the exclusive management of their own business and of employing and discharging their help at discretion.

13. A. C. FERRIS INTRODUCES PETROLEUM IN NEW YORK CITY

One day in 1857, A. C. Ferris, a New York business man, while visiting the drugstore of Nevin, MacKeown & Company in Pittsburgh, saw in the basement a tin lamp burning carbon oil, which the firm of MacKeown & Finley had been distilling from the Tarentum salt wells. Impressed by its commercial possibilities, Ferris immediately arranged to have a sample tin of five gallons sent to him in New York. The subsequent history is related in the following article which appeared in the *Brooklyn Daily Eagle* on October 30, 1881. The story is based upon an interview with A. C. Ferris.

He says that in the month of November, 1857, he introduced the first shipment into New York City from Tarentum, near Pittsburgh, under the name of carbon oil, and offered it for sale at No. 74 Water Street, then the office of the Hudson Mills, engaged in the coffee and spice trade, with which Mr. Ferris was connected up to the above mentioned time. On May 1, 1858, he withdrew from this business in order to give his whole time to the founding of the petroleum trade, locating himself for that purpose at No. 184 Water Street. In proof of this statement he refers to Messrs. D. C. Ripley, Abraham Sanger and Samuel Van Benschoten, all of the Hudson Mills.

Colonel Ferris first discovered the value of petroleum as an illuminating agent in this way: Visiting Pittsburgh on business, one of his customers, a druggist, showed him a sample of the oil, and the idea immediately suggested itself that it might be available as a substitute for camphene and other dangerous oils then in use. He borrowed a small lard oil lamp, filled it with oil, lighted it and found that it burned well, though of course smoking considerably. He made inquiries as to the source of the supply, and had a five-gallon can of the oil sent to New York. He distinctly remembers the day when, in November, 1857, the oil arrived at his office in a common tin can, corked and packed in a box with straw. This was the first shipment of oil to New York for commercial purposes. The gentlemen whose names are given above and several others, all now living, were present, and can testify to the truth of this, Colonel Ferris says. The unpleasant odor of the petroleum, hitherto unexperienced, serves to fix the event in their memories as probably nothing else could have done. The obnoxious can was soon removed to other quarters across the street, several of the party complaining of illness arising from the strange smell. Colonel Ferris experimented with the oil, burning it in various kinds of lamps for some time, and came to the conclusion that there was money in it. The oil was at first obtained by Colonel Ferris from Tarentum, Pa., as is shown by the following extract from Gesner's work on "Coal, Petroleum and other Distilled Oils," which also serves to fix the date of the introduction of the oil: "The introduction of petroleum into the market took place about three years after the oils obtained from coal had been in use. An oil called carbon oil was introduced in the New York market by A. C. Ferris, Esq. It was at first sold after being distilled, but not treated; but was afterward refined. It was procured from a salt well at Tarentum, on the Allegheny River, not far from Pittsburgh, where it was found in such quantities as seriously to interfere with the manufacture of salt."

Colonel Ferris at once made arrangements for a supply of the oil from these wells to carry on the business upon a small scale in New York and Brooklyn. Colonel Drake, as is well known, began to drill for oil on Watson's flat on July 1, 1859, the first yield showing itself on August 30.

"Thus," says Colonel Ferris, "the petroleum trade had already been in successful operation about one year and a half before Colonel Drake commenced to drill at Oil Creek." In 1857 several salt wells were yielding petroleum, and for twenty years before that time it had been sold as a medicine, but Colonel Ferris positively claims to have been the first to utilize petroleum for illuminating purposes, and to have overcome the general prejudice which existed against its use at first. This claim seems to be substantiated by the opinion of several old oil men, who, however, depend entirely upon their memory for facts. He alleges that Colonel Drake, on hearing of the new enterprise, visited Tarentum, saw the production of the wells, and took his idea from them; engaging at that place a man named William A. Smith, who was familiar with the method of boring the wells, Colonel Drake purchased a set of drilling tools from a mechanic in the same town, and with Mr. Smith went at once to Oil Creek and began boring for petroleum with the success so often recorded.

Colonel Ferris' wells at that time yielded about 4,000 barrels of oil annually, a quantity which seems small compared to the present product, but he says that it took much time and effort to dispose of his first year's contract, which was for 2,000 barrels. Succeeding in this first essay, he increased his contract for the next year to 3,000 barrels, and supplemented it by purchases of odd lots as the wells afforded them. The first sales were in very small lots of from half a gallon to five gallons. The first to buy a full barrel was a grocer in Gowanus, who paid 75 cents per gallon for the oil, retailing it at $1 per gallon. Its cost, distilled, was then about 65 cents per gallon. At the time of introducing the oil, Colonel Ferris was a resident of Brooklyn, where he worked entirely through canvassers, who, with a can of oil in one hand and a small lamp in the other, visited grocery and drug stores, etc., thinking they had achieved success on persuading a dealer to order five gallons, with lamps to match, with the condition that the goods were not to be paid for until sold, and to be returned if not sold within a given time. Circulars setting forth the merits of petroleum oil were also widely distributed in both cities, and the strong feeling which at first existed against its use was only dispelled by persistent hard work. In the course of a year quite a large trade had been developed.

As the demand increased Colonel Ferris was obliged to seek other sources of supply, as the flow of oil in the Tarentum wells was very irregular and was apparently being exhausted. Learning of petroleum deposits in Enniskillen, Canada, he made a trip thither on horseback in 1858. These deposits, which were called gum beds, were scattered over a timbered tract of land, comprising about 1,500 acres, and belonging to J. Williams, of Hamilton, Canada. The latter had collected from pits, which had been sunk some fifteen or twenty feet deep, about 100 barrels of oil. These were purchased by Mr. Ferris and shipped to the States; but they were detained by the United States Custom House authorities, who declined the responsibility of fixing a duty upon an unknown and unclassified article. After much delay, during which a considerable percentage of the oil wasted by evaporation, a duty of 20 per cent was claimed by the Government. As its original cost was 40 cents per gallon, the investment was not a profitable one. Part of it was sold after it finally reached New York, to the Empire Coal Oil Company, then distilling oil from coal, and a part to the original Kerosene Oil Company, then managed by the Austens, with an office in Beaver Street and works at Montague Creek. The balance of the oil was distilled by the Empire Company for Mr. Ferris, but its odor was so extraordinary that it could never be sold. A barrel from this lot was shipped to Rochester to a Mr. Tracy, who wished to introduce it in that city, but this gentlemen soon sent word to Mr. Ferris, that "either the oil must be shipped back or Rochester must be moved." Two or three barrels were also consigned to a firm in Milwaukee, which wished to ship them beyond that point, but no transportation company would take them further than Milwaukee, and they were emptied into the lake.

Notwithstanding these failures, Mr. Ferris' faith in Canada oil was so strong that he induced parties to join with him in the purchase of the Enniskillen Oil Tract, and set out to Canada for that purpose, finally agreeing to take it for the sum of $16,500. His associates, however, tiring of the enterprise, refused to support him, and he returned to New York and made arrangements for a supply from the Pennsylvania oil fields, also from newly discovered deposits in West Virginia and California.

He soon after became the proprietor of oil lands in Kentucky, where he sunk three wells, two of which were successful; and at the same time operated wells in West Virginia. The supplies from these sources and from Pennsylvania proving insufficient at times to meet the demand he had created for the oil, he imported a species of petroleum from France, called "oil of Schiste." At the opening of the war Colonel Ferris was doing a prosperous business, but was then forced to abandon the wells in Kentucky, while large quantities of petroleum belonging to him and stored in West Virginia were burned by rebel raiders. In addition to these calamities he had a number of bills due him throughout the South which were never collected and contracts in the same section which he was unable to avail himself of. He was so much embarrassed by these losses as to be forced to suspend business for a time, during which the petroleum trade expanded rapidly through other parties, the Pennsylvania fields having been by this time extensively opened up. Colonel Ferris retired from the oil trade some years since, although he is still actively engaged in a kindred business in New York City. . . .

14. FERRIS' ACCOUNT

As a result of the article appearing in the *Brooklyn Daily Eagle* on October 30, 1881, A. C. Ferris addressed a letter to the Editor elaborating upon his relation to the petroleum business and submitting several important documents to substantiate his position. This letter appeared in the *Brooklyn Daily Eagle*, November 6, 1881.

As your article states, I first introduced petroleum for illuminating purposes in 1857 and so overcame its obnoxious features as, after some persistent efforts, to popularize it for light. But, as your writer seemed to depend for corroboration upon the memory of "old oil man," I submit with this a copy of an original agreement for petroleum, or carbon oil, which fixes the date of the earliest transactions; and would also say that my advertisements of the oil may be found in Orange Judd's *American Agriculturist* for September, 1858, with an editorial notice of the strange oil about the same time.

I was a resident of the City of Brooklyn at the time of introducing it, and submit, in further confirmation of dates, two letters from present residents of Brooklyn who are well known—Mr. Abraham Sanger and Mr. Samuel Van Benschoten.

HISTORICAL DATA

As your writer has not the order of events correctly placed as to their occurrence, let me correct his chronology in what has now become a matter of history. My first effort was with the petroleum from the Tarentum salt well, in 1857, and my next source of supply was from the Canada oil deposits at Eniskellen, followed by oil obtained from California and expressed to me across the Isthmus of Panama, the expense of obtaining which forbade its importation. All this in 1858. In the same year I commenced to import Oil of Schiste from Paris, France, where it was manufactured from peat brought from Ireland, which yielded, on distillation a sort of petroleum. This article I refined after receiving it in New York, and adapted it to my carbon oil lamps, under the name of Amber oil, with good success. I continued to import this oil till 1859, when it brought me in competition with oil obtained from Oil Creek, and resulted in losses that led me to relinquish its importation.

The Canada oil was also a losing speculation, and its odor was of such a nauseating character that the whole block in the vicinity of my place of business in New York complained of the nuisance, and I obtained storage for it in Furman Street, in a building under the Heights belonging to Mr. Claflin, and I suppose I ought to be ashamed to confess that I never removed it from there or called to pay my bill for storage. The principal use of the building at that time was to support the fall of the Heights, and it was untenantable. The oil from West Virginia spoken of in your article, came in after the productions of Oil Creek, and the first oil obtained was shipped to me by General Karns, of Parkersburg.

The wells in Kentucky I did not bore till 1859 or '60, and were under the management of a Mr. Berry, who, in the first excitement of the war, was given forty-eight hours in which to get his family and self away or he would be hung.

The first oil which came to New York from Colonel Drake's well, I distilled in a distillery for candle tar, which yet stands near Penny Bridge on Gowanus Creek, as was also the first oil distilled there from West Virginia. In these things I claim as a citizen of Brooklyn to have been the founder of the petroleum business, and to have had a true comprehension of the great future of petroleum, otherwise I would not have relinquished a lucrative business to become a pioneer in petroleum, nor have reached out so widely for supplies of the hitherto unknown agent for light, had I not acted from the conviction that there was a great future before it as an article of commerce.

And it was not until after I had pioneered the way through many difficulties, and had created a greater demand than I could supply from the salt wells which produced it in Pennsylvania, from the oil wells or pits which had been dug in Canada, from the coast of Lower California, or from my importations of a substitute from Europe, that Colonel Drake was induced to attempt the boring of a well on Oil Creek, where evidences of its existence were plentifully apparent on the surface of the streams.

A. C. Ferris

THE DOCUMENTARY EVIDENCE

The following are copies of the memoranda of the agreements alluded to in the foregoing communication:

> This memoranda of agreement made this 7th day of July, 1858, between Mackeown & Finley, of Pittsburg, and A. C. Ferris & Co., of New York City. Witnesseth: That, whereas, an agreement was entered into between the said parties on the eleventh day of February, 1858, whereby Mackeown & Finley agreed to sell to A. C. Ferris & Co. two-thirds of their whole manufacture of carbon oil, at sixty cents per gallon, two and one-half per cent. off all amounts paid within thirty days after purchase. Now the said Mackeown & Finley agree to give to the said A. C. Ferris & Co. the other one-third of their manu-

facture, less two barrels per week, for seventy-five cents per gallon at sixty days' time, less two and one-half per cent. off all amounts paid within thirty days after purchase; length of time for this contract to be the same as specified in the article bearing date February 11, 1858.

Mackeown & Finley

A. C. Ferris & Co.

Witness: Thos. Bakewell, Jr.

This alludes to the first agreement which cannot be found. The first transactions were in November, 1857, but the parties had but little faith in the ability of Mr. Ferris to make a business on a product with which no one had ever been able to succeed, and so exacted security on the contract which was given them in the shape of mortgages on two Brooklyn lots near Carroll Park. But yet they fraudulently withheld one-third the yield of the well, believing that if Mr. Ferris could succeed in the profitable sale of 2,000 barrels per year in New York they could also dispose of 1,000 barrels per year in Pittsburgh.

But as they failed to succeed they contracted by the above agreement to sell him the whole except two barrels per week, which was sufficient to supply the trade they had built up in about nine months of trial. The "Co" was Joseph Coffin, of Brooklyn, who soon tired of such a perplexing business.

110 Water Street,
New York, September 2, 1881.

A. C. Ferris, Esq.:

In reply to your inquiry of this morning in regard to the can of carbon oil which you brought into the office of the Hudson Mills of this city, of which I was one of the proprietors, in the Fall of 1857, I can state that I remember very distinctly the introduction of the oil at the time stated, and that you was so enthusiastic as to its value as an illuminating fluid or oil that you left the Hudson Mills for the purpose of introducing the article to the public, and in which business you was, to my personal knowledge, actually engaged for several years afterward.

Yours respectfully,
Samuel Van Benschoten.

New York, September 3, 1881.

Mr. A. C. Ferris, New York City:

In reply to your inquiry as to the time I bought out the carbon oil and lamp depot in Myrtle avenue, Brooklyn, I find, by reference to my books kept at the time, that the purchase was made from one Alexander Muir June 1, 1858. How long he had kept the store before selling out to me I cannot tell, but the business was well established for the carbon oil, and my books show that I made large purchases from you during that and succeeding years. I shall be happy to show you or any one the old books if you desire to see them.

Very respectfully,
Abraham Sanger,
No. 86 Front Street, New York.

PART II

CONTEMPORARY ACCOUNTS OF DRAKE AND THE DRAKE WELL

PART II

CONTEMPORARY ACCOUNTS OF DRAKE AND THE DRAKE WELL

In view of the mighty industry which developed as a result of the drilling of the Drake Well, it is fortunate for posterity that several of the leading figures in the venture—F. B. Brewer, George H. Bissell, James M. Townsend, E. L. Drake, and William A. Smith—recorded their recollections either at the time or later. In addition, there were several other eye-witnesses to this dramatic event whose testimony has been preserved. While the stories of these individuals do not coincide at all points, they constitute the best known source of information about the Drake Well and are extremely valuable in piecing together the story of the first oil well.

15. Dr. F. B. Brewer's Story

Dr. F. B. Brewer of Titusville played a leading role in connection with the organization of the first petroleum company. The following statement about the beginnings of the industry was made by Dr. Brewer at the opening of the new oil exchange in Titusville. It appeared in the *Titusville Morning Herald,* January 28, 1881.

I was then 1849 practicing medicine among the hills of Northern Vermont. I received from my late father, Ebenezer Brewer, then residing in Titusville and whom many in this audience will remember, five gallons of "creek oil" as it was then called. This was before the days of railroads, and it was carried by Jon Lock, Esq., who still resides in this vicinity, by stage, by canal and by private conveyances, until delivered to me, with the assurance that it possessed great medicinal and curative properties. I at once gave it a trial, and was not disappointed in its healing virtues, and so long as I continued in my profession, I had it in constant use. I sent some of it to Dr. Dixi Crosby, then at the head of the New Hampshire Medical Schools. I also gave some to Dr. O. P. Hubbard, Professor of Chemistry in Dartmouth College, who, on a hasty examination, pronounced it a very valuable oil, produced at a great depth in the earth, by the decomposition of vegetable and bituminous matter, thrown up in the form of gas, condensed upon the overlying rocks and forced through the fissures as rock oil, remarking it would probably never be found in sufficient quantities to entitle it to a commercial value. Albert Crosby, Esq., son of Dr. Crosby, took some interest in this specimen and exhibited it to several scientific gentlemen, among others, Geo. H. Bissell, Esq., and Jonathan Eveleth, Esq., both educated men, and lawyers in New York City.

Three years after this I moved to Titusville, and became a member of the firm of Brewer, Watson & Company, and for the first time examined the oil spring, in the vicinity of one of our saw mills, just below the village, and called the "upper mill." I became satisfied there was oil in abundance, and it was often a subject of discussion between Mr. Jonathan Watson, Mr. J. D. Angier and myself how we should utilize it and make it profitable. It resulted in a lease being made to Mr. Angier, by the firm of Brewer, Watson & Co. He was to work the old well more efficiently, and if he found the supply of oil to increase, to make further excavations, and utilize the adjoining territory, believing, as he did at that time, the oil to be the product of coal in the higher ground along the stream. This lease was made and executed July 4, 1853, and was, no doubt, the first oil lease ever made in connection with the development of petroleum in Pennsylvania. In pursuance of this arrangement, ditches were opened, trenches were dug, and the oil and water conveyed to a central point, where by some simple device the separation took place, and the supply materially increased. It was used for lighting the mills and lubricating the machinery.

In the spring of 1854 I visited New England, and met Mr. Crosby, of whom I have before spoken, and invited him to come to Pennsylvania and assist in organizing a company to work these wells, and introduce to the public this new and valuable factor in the world's commerce. He came, and from the first was enthusiastic in his estimate of its value and its abundance. With him I visited the several localities along the stream where oil appeared, as far down as the McClintock farm. Here was a well in the middle of the creek. Crosby became excited, and recommended the purchase of the entire oil district then known. And I suppose $50,000 judiciously invested, at that time, would have controlled the oil basin on both sides of the stream.

As we stood on the circle of rough logs surrounding the spring and saw the oil bubbling up, and spreading its bright and golden colors over the surface, it seemed like a golden vision and Crosby at once proposed to purchase the whole farm, which we could have done for

$7,000, but as our pecuniary ability was limited to a much smaller sum, I was obliged to decline the tempting opportunity, to find in the early future I had lost over a million dollars. When I told him we did not wish to take capital from our lumber business to put into oil, he said, "damn lumber, I would rather have McClintock's farm than all the timber in western Pennsylvania."

However, he obtained from McClintock a refusal of the land on the east side of Oil Creek for $1,000, on the west for $5,000 and the spring for $2,000, or all, $7,000. This, probably, was the first "option" for the purchase or sale of oil property, as such, ever made, but which, a few years after, became so common. It was a verbal agreement—buyer's option—thirty days between Crosby, of New Hampshire, and McClintock, of Pennsylvania, August, 1854, to which your speaker was witness.

On our return to Titusville an agreement was entered into with Crosby by myself, representing the firm of Brewer, Watson & Co., in which it was stipulated that if Crosby would find parties to take hold of the business and furnish capital to work the territory, we would sell the Hibbard farm, containing 100 acres of land and on which the original well was being worked, and on which the first, or Drake well, was bored and completed six years after. The conditions of the contract were $5,000 for this land in fee, and the oil right in our other lands, consisting of several thousand acres. A stock company was to be organized with a capital of $250,000, of which one-fifth was to belong to B., W. & Co., one-fifth to be treasury stock, and three-fifths to be divided as was thought best by the original purchasers; in other words, to be placed where it would do the most good. With several specimens of oil, Mr. Crosby left Titusville full of hope, saw two gentlemen of whom I have previously spoken—Mr. J. G. Eveleth and George H. Bissel—exhibited the samples of oil and submitted the contract, which he wrote me, met with their hearty approval. They cordially consented to the conditions; and on their return to New York, which would be in a few weeks, they would make every arrangement necessary to carry out their part of the contract, meantime I was to send on some oil and meet them in the city at an early day, to be named by them.

A generation has not passed away since three barrels of crude petroleum started on a voyage of discovery. It was gathered on the lands owned by Messrs. Brewer, Watson & Co., taken from a rude excavation, which was curbed up with rough, unhewn logs. So remote was the origin of this well that the oldest inhabitants had no knowledge or tradition of its history. The oil was gathered by one of your prominent citizens, J. D. Angier, Esq. It was transported to Erie by another well-known individual, J. J. Hurst, Esq. From Erie it went to Buffalo by steamer and by canal to New York and as it was consigned to Eveleth and Bissell corner of Broadway and Franklin Streets, it was left there by a drayman. Here stood the new and magnificent warehouse and sales room of D. Appleton & Co., the leading publishers and book sellers in the city. Their store was a model of elegance and taste, was filled with rare books and literary treasures, ornamented with costly works of art from every land, all contributing to make it the fashionable resort for those whose literary taste led them to seek gratification in this elegant establishment. One can hardly realize the surprise and annoyance of these fastidious gentlemen to find the passage to their store blocked by these most disgusting looking and vile smelling barrels standing on the pavement. Cultivated in all that pertained to art and literature, so sadly had their education been neglected in regard to perfumes and odors that they failed entirely to discover anything attractive or agreeable in the horrible exhalations oozing from every pore of these wooden packages, standing in the hot sun and sending small streams of their contents along the stone pavement. The offensive packages were loaded upon a passing dray, and so securely secluded from public gaze that it was several weeks after the return of Messrs. Eveleth & Bissell before the oil was discovered and brought to light, and so tenacious were the stones of their hold on this their native fluid, and so offensive had they become to the aesthetic taste of the proprietors of the building, that they were removed, and the lasting odors corroborated the truth of poetry, where Moore speaks of the vase in which roses have once been distilled.

> "You may break, you may shatter the vase if you will,
> But the scent of the roses will cling to it still."

So the offensive stones were removed from the place they had occupied on Broadway and Appleton was himself again. I have often thought what might have been the consequence if some careless smoker had thrown a lighted match on those barrels while the gas was escaping. On the return of Messrs. E. & B. to the city, a diligent search was instituted for the oil. Every trace of it seemed to be lost; the drayman was unknown, and the place to which it was taken was also unknown. But in the course of time it was found, and a portion taken to their office over the store, with such precautions as would be suggested by ordinary men. But alas! crude oil, like necessity, knows no law, and soon the pure white ceiling of the elegant store beneath was defaced; the plague spot appeared, the offense was rank; it smelt to heaven, ever greater to the eye, than had been the exhalations to the nostrils.

Nevertheless, on that spot, in that office, in that building, arrangements were perfected for introducing to the world a staple article of consumption which has carried more light and as much comfort to the people as any single article in existence. Here the Pennsylvania Rock Oil Company was organized in November, 1854, a considerable quantity of oil was sent to Prof. Silliman, of New Haven, the then most prominent chemist in the country. He gave it a most thorough analysis, and published the results of his experiments in a scientific paper and in pamphlet form for general distribution. This report called the attention of capitalists to the subject, but it seemed impossible to get men to take hold of it. In fact, so far as any real progress in development was concerned, very little was accomplished until the Penn Rock Oil Company of New York had passed into the Penn Rock Oil Company, of New Haven, September, 1855, of whom Colonel E. L. Drake with his associates, leased the lands in the fall of 1856. Several gentlemen from New Haven visited Titusville, and I always found them enthusiastic in their estimates of the value of the product, and its ultimate introduction as an illuminator.

Up to this time, Messrs. Eveleth & Bissell had paid all the expenses of the operations. Yet not a dollar had been paid on the land, not even the taxes; but times were hard and capital was timid, and few men cared to invest in what seemed so very uncertain an enterprise. I met Col. Drake in New Haven, in the winter of 1855; he told me he had been solicited to take some stock in an oil company, and wished to talk with me about it. He said his father had visited this part of the country twenty years before, and gave, substantially, the same account as I did, and if the oil had flowed twenty years, it probably would one hundred, and that was as long as he was likely to live, so he bought some stock of Mr. Townsend, one of the new stockholders. That's how Mr. Drake got into the oil business, and so little confidence or sympathy was felt by the community at large that Drake was often called crazy and I was called a swindler for so grossly misrepresenting the value of oil territory.

In 1857 Colonel Drake came to Titusville. I took him around, pointed out the several localities where we gathered oil. He was more than satisfied with his investment and returned to New Haven with a genuine attack of oil fever, a disease very little known at that time. Soon after, however, it became epidemic, and although so many were called to mourn, there seemed a wild infatuation to risk exposure. So the mourner continued to go about the streets. Colonel Drake returned in the following spring with his wife and children. The ups and downs, the trials and disappointments, the continued failures, with hardly a grain of success, would have discouraged a less persevering and plucky man than the Colonel. His wife was his good angel, a true helpmate to him, and in all his disappointments she encouraged him, his associates seemed to lose confidence in his operations, and at the last, had it not been for help in Titusville, by those still living, the "Drake well" would have been a failure, but thank God it was not, and for Colonel Drake let me say a more genial and kindly gentleman I never met. Honest and upright, he risked his all to develop the oil interest in Pennsylvania, but like many another enterprising man, he shook the boughs for others to gather the fruit.

The kindness with which the oil men of all parts of the country, and the munificence with which the State of Pennsylvania have responded to him in his sickness and affliction, is worthy of all praise. To this recognition he is eminently entitled, and it is paid to one, who by his own unaided efforts had reached an honorable position and accumulated a fair competency, relinquished both in order that he might demonstrate his faith in the oil business and make his way to fame, if not to fortune. He was of that class of men who, having put their hand to the plow, never look back, deterred by no difficulties and impeded by no obstacles.

You can do no more for him, except to keep his memory green. But you have done that for his wife and children which has made his last years peaceful and happy, and all goes to show that, like republics, oil men are not ungrateful.

16. GEORGE H. BISSELL'S STORY

George H. Bissell's account of the beginnings of the petroleum industry, which follows, is to be found in the "Report of the United States Revenue Commission on Petroleum as a Source of National Revenue," *House Executive Document* No. 51, 39 Cong., 1st Sess., pp. 4-5. The report is dated February, 1866.

In the year 1853, I saw at the office of Professor Crosby, of Dartmouth College, a bottle of petroleum, given him by Dr. Brewer, of Titusville, Pennsylvania, found upon his (Dr. Brewer's) land, on Oil Creek. I became greatly interested in the product, and, about six months after, proceeded to Titusville, with Mr. J. G. Eveleth, who was then, and had been previously, my partner in other business. We bought together from Brewer, Watson & Co., what were then thought to be the principal oil lands of Pennsylvania. They were in extent one hundred acres in fee simple, and one hundred and twelve acres on lease for ninety-nine years, on Oil Creek, about two and a half miles below Titusville, for which lands we paid $5,000. Before purchasing we prospected the land. We dug holes in the ground, six or seven feet deep. The oil and water together percolated into these holes, and the oil was afterwards gathered by dipping woolen cloths into the mixture, and wringing the cloths out. In three or four hours, one of the holes would collect from a pint to a quart of oil. . . . We did not prospect the oil for medicinal purposes, but we believed it would be a good illuminator, and we sought it as an article of commerce. Illuminating oil from coal was just beginning to be talked of, but very little was made then. We then, in 1854, organized a company in New York City, under the name of the Pennsylvania Rock Oil Company. The nominal capital was $500,000. This was the first petroleum company ever organized in the United States, or elsewhere, so far as I know. I think it antedates any other company by at least five years, as I believe no other company was organized till 1859, after the first well was struck.

We proceeded to develop these lands by trenching them, and raising the surface oil and water into vats. These trenches varied from twelve to eighteen feet deep, three to four feet wide, and about sixty or seventy feet in length, and were dug so as to converge, increasing in depth, to a central point at a small saw-mill upon our land, where we collected the oil which had run from the different trenches to that point by a pump worked by the water power connected with the mill. The supply was very limited, amounting to, perhaps, a few barrels in the course of a season, which we sold for $1.50 per gallon, to parties who retailed it for medicinal purposes. These primitive operations were conducted for about three years. In the spring of 1855 we employed, at considerable expense, Professor Silliman, of Yale College, to analyze the oil, and we furnished him with all useful apparatus for his experiments. Professor Silliman was engaged about four months in his analysis, and in the fall of 1855 we published his report, which was full and elaborate. This report excited attention in New Haven, and some gentlemen in that city proposed to take an interest in our company on condition that it should be reorganized in New Haven. This was done, Professor Silliman being elected the first president. The work of trenching the lands was continued until 1858, when we heard that Mr. Kier of Pittsburg, had obtained a small quantity of oil from one of his salt-wells near Pittsburg, which oil somewhat resembled our own. These salt-wells were artesian wells, the same kind which are now bored for oil, and were usually sunk to a depth of several hundred feet. They were quite common, and have been for many years, in the neighborhood of Pittsburg, and in the Kanawha region, and a large supply of salt has been obtained from them. . . . The Pennsylvania Rock Oil Company then determined to sink an artesian well, and concluded a contract with some of its members, the condition of which was that the company should receive twelve cents per gallon for all oil raised from their land, the lessees to pay all expenses for future developments. The lessees employed one of their number, Mr. E. L. Drake, as superintendent, to oversee their operations on Oil Creek, and furnished him with the necessary capital. Mr. Drake commenced operations at once, but was delayed by many obstacles, until, finally, on the 28th of August, 1859, the first vein of oil was obtained from a well sunk in one of our trenches upon the bank of Oil Creek, about two miles below Titusville, in Venango County, Pa. This vein was struck at a depth of sixty-nine feet and six inches from the surface The well produced oil for six or eight months, but it never exceeded four hundred gallons per day. I think the production ceased in about eight or nine months.

Our success in striking oil created a great excitement, and was the beginning of the petroleum business in America. Immediately upon the striking of oil, Mr. Eveleth and I went out to that region and commenced purchasing land. Our entire purchases at that time amounted to something in the neighborhood of $200,000. A month or two later many other parties appeared in Venango county to buy lands for oil purposes, and by December the hotels in Titusville were crowded with speculators. By that time several wells had been started, and preparations were being made for a large development. I think that the Parker and Crossley wells were struck in December, 1859. The Crossley well yielded thirty-five to forty barrels a day. The Paker well was smaller. The next well of importance was a well on the Hamilton McClintock farm, which was struck that winter or early in the spring.

The Evans well, at Franklin, which produced about twenty barrels a day at one time, was struck in the winter or early in the spring. The Hoover well, a very celebrated well on the Allegheny river, below Franklin, was sunk by our firm, Eveleth, Bissell & Co., in the spring and was a forty-barrel well.

17. JAMES M. TOWNSEND'S STORY

In the northwestern Pennsylvania oil region, all the glory fell upon Colonel E. L. Drake for completing the first well deliberately drilled for petroleum. The New Haven capitalists, who had organized the Seneca Oil Company, sent Drake to Titusville, and financed the enterprise, felt that they had not received any credit for the achievement. The following account, written under the supervision of James M. Townsend, the leader of the New Haven group, represents a different point of view from that held in the oil region. There is no indication as to when it was written and what circumstances prompted its writing. Townsend Collection #413, Drake Museum.

The history of any important movement helping the development of that which will add to the comfort, safety, convenience or general welfare of humanity ought always to be interesting. Where it may be done, it is desirable, too, that some record should be compiled, if not by those who have taken an active part in such enterprises, at least, during their lifetime, in order that as many valuable details, as possible may be preserved.

It is the object of this article to give a plain, succinct, unvarnished account of the development of the Natural Oil Industry in Pennsylvania.

It will not be necessary to enter into an extended inquiry regarding the history of petroleum. Let it suffice to state for the benefit of those who have not followed the subject closely that in very early times oil springs were known to the Indians in what is now the interior of New York State in the vicinity of Seneca Lake. The Indians used this oil as a liniment, and, after that territory passed into the possession of the whites, it began to be used quite extensively by them as well, as a remedy for various bodily ills; being known as "Seneca Oil." It gradually became known that natural oil was to be found in many different places in this country, portions of the Mississippi valley, Penn., Ohio, Va., Kentucky, etc. It has been stated that about the beginning of the present century one, "Nat. Carey had peddled the peculiar oil which was skimmed in small quantities from the waters of Oil Creek. x x x He called it Seneca Oil from the fact that Red Jacket, the Seneca chief had imparted to the whites the secret of its powers."

The Knowledge of this extensive diffusion of "rock oil" was largely gained through boring salt wells. It will be borne in mind that all this rich deposit, outside of its medicinal qualities, appears to have been regarded as practically useless. How ever the supply of sperm-oil becoming scarce on account of the great slaughter of sperm whales, its price was advanced to such a degree that "necessity, the mother of invention" was again at work and the process of distilling oil from coal for lighting purposes was resorted to and, thus, attention was directed to the natural oil as a possible means of illumination.

But the methods used for obtaining petroleum were so very primitive that it appeared highly improbable that a sufficient quantity could be obtained to render the supply adequate to the demand which would ultimately be made of it should be utilized in the world's practical economy as an illuminator. For instance, one of those primitive methods by which oil was separated from the water, upon the surface of which it appeared, was by spreading out blankets. These would of course, absorb and then the oil was subsequently forced out of them by the wringing process.

In the fall of 1854, Messrs. Eveleth and Bissell came to New Haven, Conn., to dispose of certain lands in the neighborhood of Titusville, Penn., representing that as a very valuable mineral paint and an oily substance, which might be used in its crude state to saturate cotton waste and burned on lumber rafts, were among the resources of such lands and also that the said lands were encircled by other mineral deposits. One of these gentlemen, Mr. Eveleth was a lawyer from Maine. The other Mr. Bissell, had been teaching school in New Orleans, and, on his journey North, his attention had been attracted to these products of the Penn. lands. Now the plan of Messrs, Eveleth and Bissell was to dispose of a tract of some twelve hundred acres in extent to New Haven capitalists. The first requirement on the part of the New Haven people was that Messrs. Eveleth and Bissell should obtain a report on the merits of the Rock Oil or Petroleum obtained from such Penn. lands from Prof. B. Silliman, Jr., who at that time filled the chair of General and Applied Chemistry at Yale.

In due time Prof. Silliman made his "Report on the Rock Oil, or Petroleum from Venango Co., Penn., With Special Reference to its use for Illuminating and Other Purposes." Its date was April 16,

FIRST OIL "SHIPPED" TO PITTSBURGH

Nathaniel Carey, one of the first settlers on Oil Creek, is said to have introduced petroleum into Pittsburgh about 1790. This sketch of him is taken from McLaurin's, *Sketches in Crude-Oil.*

1855. As a result of this decidedly favorable Report, there was incorporated, under the Laws of the State of New York a joint stock company under the name and style of "The Pennsylvania Rock Oil Company," which purchased the aforesaid tract and, that the Company might control all minerals or oil in that vicinity, it leased for 99 years the entire balance of the lands controlled by Messrs. Eveleth and Bissell which were supposed to contain any minerals paint oil &c. These lands formed a large level tract lying between high mountains on either side; being a sort of basin in which, it was conjectured, nature had deposited her riches of oil and minerals. These lands were described in the deeds as bounded on one side by "oil creek" and on all other sides by "no man's land;" and this estate was considered at that time to be of so little value that it was thought unnecessary to bound it otherwise.

The parties owning the leased lands reserved merely the surface of the same for yards in which to store lumber brought down oil creek in rafts to a saw mill, on the flat, where it was dressed for the market.

In 1856, after "The Penna. Rock Oil Co." was incorporated all the property which it owned or had leased was sublet to parties in New York who were to develop the same, vigorously, and to pay a royalty on all productions. The royalty on oil was 12½¢ per gallon. Before the parties in New York had begun developing the resources of the land the hard times of 1857 came, crippling them and they were consequently, unable to fulfill their contract. Searching for a way to be released, they discovered that the wife of one of the grantors from whom the purchase of the land had been made, had not signed the deed and, taking advantage of that omission, they surrendered the lease on the ground of "defective title."

One of the influential stockholders of the "Penn. Rock Oil Co." was the Hon. James M. Townsend, of New Haven, and to him belongs the credit of sinking the first oil well in the world. After the surrender of the lease by the New York lessees, Mr. Townsend conceived the idea of having a thorough examination made of the property. This he suggested, and offered, provided the property should be found as represented, to assume the lease surrendered by the New York people. Boarding at the same hotel with Mr. Townsend was Mr. E. L. Drake, who had been a conductor on the New York and New Haven R. R., and had been compelled to leave the road on account of severe illness from fever of a malarial type. To him Mr. Townsend unfolded the project, esteeming him a proper person to make such examination especially as he, being a rail road man, could obtain passes and travel without any expense of transportation. Mr. Drake accepted the offer made. Mr. Townsend furnished the money necessary for general expenses and sent Mr. Drake to Penn., to make the desired information, have title perfected and report, with the understanding that, if all was favorable, Mr. Townsend would obtain the capital and develop the property.

Mr. Drake returned, reported perfection of title and stated that he believed money could be made by developing the products of the tract. His opinion was that a fortune could be made from the rock oil by merely bottling the same and selling it for medicinal purposes.

On obtaining these satisfactory results from Mr. Drake's investigations Mr. Townsend organized the "Seneca Oil Company New Haven Ct." The lease surrendered by the New York lessees was transferred to this new corporation and the "Seneca Oil Company" of New Haven Ct. proceeded to take the project in hand with true New England energy and enterprise. Mr. Drake was employed as its superintendent at a salary of $1,200 per year and furnished with necessary means to be used in carrying on the active, practical work on the ground; removing and establishing himself at Titusville, Venango Co., Penn. The following is a copy of the first certificate of Stock issued by the "Seneca Oil Company." It was issued to Capt. Charles Henry Townsend, of whom we shall have occasion to speak later in this sketch:

Seneca Oil Company New Haven Ct.

500.000

No 1

[Picture of derrick, sheds & etc. etc.]   Shares 10

Capital $500.000 Stock	This is to Certify that Charles H. Townsend is entitled to Ten .... shares of the Capital stock of the Seneca Oil Company.
Shares $25 Each	transferable only on the Books of the Company by him or his Attorney upon the surrender to this Certificate

In Testimony Whereof, the said Company have caused this Certificate to be signed by their President and Secretary.

New Haven Decbr 20th 1860

(Picture of
a bear)

F. A. Townsend Secy Jas M Townsend Prest

It will remembered that we have referred to the primitive methods by which oil had been obtained. The ways were round about and devious and while the oil sold readily at the price of $1.00 per gallon, it was obtained slowly and only in small quantities. After trying other ways without success the managers of the "Seneca Oil Company" decided to retain the services of a man from Syracuse, New York, familiar with all the technique of boring salt wells; the idea being to have this man go to Titusville and bore for oil. Let it be understood that up to this date the "Seneca Oil Company" had been engaged over a year and a half in developing the property under great difficulties, as Titusville was at that time but a place of few hundred inhabitants and remote in situation from any source of supplies, the City of Erie thirty miles distant being the nearest point from which direct transportation could be made. Even the mail was at that day carried irregularly over roads almost impassable except on horse back. Under these adverse circumstances much time had elapsed and much money had been expended with but small returns and, finally, all the stockholders of the "Seneca Oil Company," with the exception of James M. Townsend refused, or were unable to advance any more means to carry on this work.

Had it not been for Mr. Townsend this enterprise must have languished. He stood in the breach and continued to bear the expense of continuing efforts to obtain oil by any improved method after others had declined to advance anything more, their interest having been paralyzed by discouragement, which was, indeed, depressing. Finally after hoping against hope Mr. Townsend sent the last remittance to Mr. Drake to pay bills and return to New Haven. But on the very day the money order reached Mr. Drake, which was August 29, 1859, the augur, which was then at a depth of 68 feet, dropped four inches and the flow of oil came up to within five feet of the surface. This was the first oil ever raised by such a process and it is said that when the fact of the success of this effort became known, the then village of Titusville was electrified by the dwellers along the creek rushing into the town screaming to every one they met, "The Yankee has struck oil."

As is generally the case those who have the ability to think ahead of present time and present time methods are regarded as eccentric and visionary persons.

Indeed it is said that the first salt well borer whom Mr. Drake engaged to go to Titusville failed to put in an appearance at the time designated and it was afterward learned that he supposed Mr. Drake to be insane and simply promised to go, as the easiest way of getting rid of him.

Now, however, success was thought to be assured. The following is a copy of a notice which appeared in the "Venango Spectator" and was copied by other papers.

"In 1859 Capt. C. H. Townsend, then in command of an ocean steamer plying between New York and Havre took a small bottle of crude petroleum with him—probably the first ever taken to Europe—and had it analysed by an eminent French Chemist. The report of the Chemist was: 'If that oil can be gathered in quantity enough, its illuminating and lubricating qualities are such that, for those purposes, it will revolutionize the world.' Hon. James M. Townsend, brother of Capt. C. H. Townsend, was the man who sent Drake to Titusville not with a free commission but under special directions to do what he did do—bore for oil. If Drake had failed the loss of the adventure would have been the loss of Mr. Townsend. He was responsible—the furnisher of the means to carry on the work undertaken by Drake, who was in fact his foreman. It is no more than right that Mr. T. should have at least a full share of the honor of a pioneer in developing the great product which has revolutionized the world. If General Grant captured Vicksburg, Mr. Townsend bored the first successful oil well in Venango County."

Mr. Townsend being uncertain as to whether the flow of oil would continue requested the New Haven Newspapers to refrain from extensive mention of the matter. His request was kindly complied with and it was some two months before anything very definite appeared in the columns of the New Haven Press. On the evening of Oct. 24, 1859, there appeared quite an extensive article in the issue of "The New Haven Register," a shorter notice appeared in the "New Haven Journal and Courier" of the 25th of Oct. 1859 while a longer article appeared in "The New Haven Palladium" of Dec. 5, 1859.

The "Seneca Oil Company" expended in this enterprise before disposing of their entire interest in the property the sum of $50,000. It was nearly two years before the "Seneca Oil Co." "struck oil" or, at least, before, it was able to obtain oil in any great quantity and, as it was necessary to obtain a market for the oil before it could be expeditiously disposed of and no special preparations had been made for the care of such an immense supply as was now accummulating, a great quantity of the oil, which was then valued at $1.00 per gallon, flowed away and was lost. Here was something of a dilemma, a rich supply of something which no one seemed to know just how to utilize. Before any use could be made of it, other than burning it in saturated cotton waste it must be de-odorized. Long and repeated experiments were made before that was accomplished. Yet this was a most necessary step, as the oil when first raised emitted a most offensive odor. Neither was much known of the nature of the oil. It was therefore not known that it gave out a dangerous and explosive gas, and there had been no method employed for carrying off such gas in pipes.

After the oil was obtained in large quantity there was nothing to put it into. They then procured all the barrels they could find whiskey barrels being almost the only ones available, but the oil went through them, very quickly. This state of affairs compelled them to build large vats of six inch planks in which to store the oil. One damp foggy night, when the condition of the atmosphere was such as to interfere with the evaporation of the gas, which had accumulated in top of the vat house, in which a large quantity of oil was stored, the engineer entered the building with a lantern. He stepped upon a ladder in order to look into the vat. When the gas came in contact with the flame of his lantern the top of the vat house was immediately ablaze. The engineer, happily, jumped and saved himself; but in no time, the whole vat house and all the oil were in flames. A large piece of the boiler was blown fifty feet and it passed over the heads of the Engineer's wife and children. Had it gone lower it would have swept them all out of existence. In a printed account of this sudden catastrophe occurs the following brief sentence, which describes so well the complete destruction wrought:—"Oil, buildings, everything, was burned, except the hole in the ground." This was in the autumn and before the company had been able to supply the void of everything necessary to the producing of oil Spring had returned. In the meantime the knowledge of this method of obtaining oil had become general, the number of oil wells in different places had increased to that extent that the supply had come to decidedly exceed the demand which, let it be remembered, was still limited, owing to the ignorance prevailing of the real value of the product. The price of oil decreased from one dollar per gallon to one dollar per barrel. How then was the "Seneca Oil Company" to realize any profit with the responsibility of a contract to pay a royalty of 12¢ per gallon, hanging over it?

The result therefore, was the disposing of its interests and the dissolution of the corporation. After all the difficult work, the remarkable discovery and the benefit gained for the world, the total amount realized by those who conceived and carried out this useful enterprise only equaled the entire amount expended.

To New Haven belongs the honor of developing petroleum interests in this country. It was her citizens with the exception of Mr. Drake who furnished the brains, as well as the capital and by means of their intelligence, capital and perseverance one of the greatest developments in the interests of the useful mechanical arts, commerce and the practical economy and comfort of the human race has been made and the prime mover as well as the staunch supporter of the whole enterprise, of which it has been the object of this sketch to give a correct account, was James M. Townsend.

Mr. Townsend writes: "The fact is (and I don't care who contradicts it) that the idea of sending Drake to Titusville, Penn., originated with me and I furnished him the money to go. The idea of assuming the surrendered lease of Messrs. Havens & [Lymans] was suggested by and originated with me. The suggestion that Mr. Pierpont and others unite in forming a company and furnishing the means was a suggestion of mine. The whole plan was suggested by me and my suggestions were carried out. Of course, the others would suggest and if their plans were thought better than mine, would be adopted. But my suggestions were practically adopted. The raising of the money and sending it out was done by me. I do not say it egotistically, but only as a matter of truth, that if I had not done what I did in favor of developing Petroleum it would not have been developed at that time."

Mr. Townsend called upon capitalists in New Haven and New York and presented the plans. They would listen, look at him and shake their heads with a remark something like this: "Oh Townsend. Oil coming out of the ground, pumping oil out of the earth as you pump water? Nonsense! You are crazy."

Mr. Townsend had to face many discouragements and has stood alone. He writes in connection with his hard ships:— "Time and paper could hardly tell what I went through in those years of development. Titusville was the most forsaken place I was ever in and the mode of getting there most crude. I went a great many times and in the spring the mud was perfectly awful. x x x The suffering and anxiety I experienced I would not repeat for a fortune. When everything appeared all right fire came and burned everything but the "hole in the ground" and this was in the month of October. Winter coming on we could not rebuild, at once, and by the time we were rebuilt others had built and bored wells near us so that oil was as abundant as water. While before the fire we sold for one dollar a gallon we could not get but one dollar a barrel, which with a twelve cent royalty to the "Penn. Rock Oil Co." made a daily loss to us; and, at that time as I was the only responsible man left ruin stared me in the face. The Laws of Penn. at that day made individual members of foreign corporations personally liable and I was holden for a royalty of twelve cents a gallon on the oil; besides which we had become involved in interminable lawsuits on account of the leased land."

From this abbreviated account it may be seen that Mr. Townsend passed through a very severe and trying experience. While pioneers in great enterprises are so frequently overlooked and while Mr. Townsend's name may be unknown to many who have enjoyed the benefits resulting from this important discovery, much earlier than they would, had it not been for his interests, yet it is pleasant to know that his services are highly valued by some most estimable authorities who have full acquaintance with the facts in the case as the following will show:

A distinguished citizen who lived in Penn., some years ago wrote: "The state of Penn., should erect a bronze monument to the honor of James M. Townsend for being the means of developing an industry which has brought to our state millions of money." Another quite an eminent citizen of Penn., requested Mr. Townsend to put a claim for a medal which Humboldt had ordered to be given to the discoverer of Petroleum. As Mr. T. had been the means of furnishing all the money which was needed for the expense of developing petroleum, he thought he was entitled to the medal and believed it would be awarded to Mr. Townsend.

18. E. L. Drake's Story, Written in 1866

During the summer of 1866 Colonel E. L. Drake visited Titusville and, while there, a reporter for the *Titusville Morning Herald* interviewed him and secured data for the following story which appeared in that newspaper on July 27, 1866. Although not actually prepared and written by Colonel Drake, the account embodies his version of drilling the Drake Well. It constitutes the first and most complete statement from him upon the subject.

His first visit to Titusville was in the year 1857. This was before the building of the A. & G. W. and P. & E. Roads. At that time there was a population of about 125 in Titusville, no churches, two hotels—the Eagle, which has been removed, and the American, which has been so renovated as not to be recognized. Among the families here at that time were those of J. L. and E. H. Chase, the Titus and Brewer & Watson; the latter were engaged in the lumbering business. The stages run twice a week from this point to Erie. At that time the oil was collected from the springs on the Flats by means of blankets or cloths, and bottled for medical use. It was also used for lighting the mills. While sitting in the store (now Ames') his attention was called to the bottles of oil, and he expressed incredulity when told it oozed from the ground, and the next day accompanied Dr. Brewer down the Flats to examine the phenomenon. He says when he found their statements verified, the idea flashed upon him that there was a basin or spring of oil in the earth or rocks below, and that he then formed the resolution of sinking a well. On his return to the East, he told his friends of the experiment he wished to make, and expressed the belief that oil would yet be found in immense quantities in this region, and become used extensively in commerce and the arts. The popular idea in this section and even the scientific opinions of Profs. Silliman and Park whom Mr. Drake consulted, on his return to the East, were that the oil was the drippings of the coal, imbedded in the contiguous hills—that it was idle to bore for it, and that the only method of accumulating it was by digging ditches leading to a vat. There were no books to be found in the country which treated of the subject, and Mr. D. had never had any practical experience in boring; but he was unable to divest himself of the idea that this was the true method, an idea which haunted him day and night. He induced some men of capital to embark with him in the enterprize and entered upon his experiments in the spring '58. His first step was to visit the salt wells on the Allegheny and observe the *modus operandi.* Finally he selected a spot near Ames' Mill, below Watson Flats, and was delayed until the spring of '59, before he had secured a competent driller and the necessary tools. His supposition was that he would have to sink his well to the depth of 1,000 feet. The same kind of tools were used then as now. The driller charged one dollar and a half per foot for boring. The enterprize was the subject of a good deal of ridicule in these parts, and many persons made themselves merry at the expense of the pioneer. An instance will prove this. Mr. D. made several contracts with a number of practical drillers which was successively broken. He at last ascertained that the cause of it was that his scheme of boring for oil was looked upon as entirely visionary, and that he was regarded as a monomaniac on the subject. He finally resorted to an innocent deception to secure an operator giving out that he intended to bore for a salt well. A series of annoyances and delays, as we before remarked intervened to prevent operations till the month of June '59.

Mr. Drake's assistant proposed to crib to the rock, which was the invariable practice in those days. Mr. Drake advocated the driving of iron tube to the rock—an idea which the miner scouted, but having failed to crib, owing to the water, the tubing was tried and proved a success. This was an entirely new feature then, but is now the universal practice. Indeed, it is now applied to putting down fresh water wells. Had Mr. D. procured a patent to which he was justly entitled for the invention, he would have realized a fortune from it.

The pipe was driven thirty-two feet to the rock, and then the well bored thirty-seven feet and six inches in the first sand rock. Not having any pipe Mr. D. commenced pumping before he had tubed the well, using a common iron water pump for the purpose, fastening the handle of the pump to the walking beam. Satisfied by this process of the presence of oil in considerable quantities in this well, he then went to Erie and Cleveland for the tubing, could obtain none there, nor at Buffalo, and finally ordered it from Philadelphia. After tubing the well it turned out a complete success, pumping twenty-five barrels a day, and continuing when in operation to yield about this quantity for the period of two years.

Mr. D. was then in the position of the man who drew the elephant at the raffle, and did not know what to do with it after he got it, oil being comparatively good for nothing. Then there was no home or foreign demand for it, no refineries in existence, and its illuminating and lubricating properties were not then discovered. The parties engaged in the manufacture of coal oil were slow to acknowledge or discover that petroleum possessed equal illuminating qualities. The first refiners who commenced refining petroleum were James McKeown and Samuel Kier of Pittsburgh.

From this period it came rapidly into commercial use, stimulated development, and rose in value in a corresponding degree. Few can appreciate the delays and difficulties incident to this discovery. It was necessary to go to Erie and more frequently to Pittsburgh for everything in the way of machinery. The few stores here were only supplied with the tools for lumbering and farming purposes. On one occasion, Mr. D. wanted a pick, two shovels, a chain and some spikes. There were only two stores in Titusville at the time—Brewer & Watson's and Mr. R. D. Fletcher's but their assortment did not contain the articles needed. Mr. D. went to Hydetown, and bought his pick of Charles Hyde (now an oil millionaire) who kept a country store in a tumble down log cabin in that place; bought his spikes of Samuel Q. Brown (another oil millionaire) at his store, Pleasantville; procured his chain of David Mitchell (another oil millionaire) at his store in Enterprise; but was obliged to send to Erie, a distance of fifty miles for two shovels. Mr. D. engaged in putting down other wells, but failing health compelled him to abandon his undertakings here and return East, before the era of speculation set in, and before petroleum had produced such a revolution in the commercial world, and become the most fruitful source of individual and national wealth that has ever been discovered. The revenue derived from petroleum during the years '64 and '65 was greater than that yielded by both iron and coal during the same period. Constituting a medium of exchange with foreign countries, in the opinion of importers, petroleum alone enabled this country to successfully carry on and terminate our civil war.

The friends of Col. Drake without the knowledge of that gentleman a few months since, prepared a memorial to Congress praying for an appropriation for his relief, in consideration of the vast benefits he has conferred upon the commerce of the country and the Government. The application has received the highest endorsement from the press of the country and the public at large, and we have no doubt that it will meet at the hands of the next Congress with a favorable consideration.

19. COLONEL E. L. DRAKE'S STORY, WRITTEN IN 1870

For some unknown reason, Colonel E. L. Drake undertook about 1870 to write the story of his coming to Titusville and his drilling of the Drake Well. The account is incomplete but it furnishes additional details about the drilling of this famous well. The original manuscript is in the Drake Museum.

In December 1857 I was employed by some parties living at New Haven, Conn. to go to Titusville, Pa., to perfect the titles to some Lands, held by them at that time by Lease. At that time there was no Rail Road to Titusville from Erie and Staging anything but agreeable, but as there was no other way to get there, unless I walked, I took my seat in the Stage one bright Monday Morning for a ride of forty five miles. The Road for the first fifteen miles was very good, but from Waterford to Titusville there did not seem to be much Road, but rather an extensive mud hole, (although in Mid-winter) this, we waded slowly through for two days, when at ten o'clock on Tuesday night I arrived at the now famous City of Titusville, but at that time a small delapidated Village Containing about 125 souls of all descriptions. The place had been settled about sixty years, and had been and was at that time, the Central point or headquarters of a heavy Lumber Company (Brewer Watson & Co) which had been engaged several years, in making as well as buying of all the small dealers in that vicinity all the lumber they could and running it to Pittsburgh and markets below there and selling it. Although they converted the Lumber into Cash but very little of that Cash ever found its way into the Pockets of the Inhabitants of Titusville and vicinity (except the members of the firm) as one man told me had worked for them fifteen years steady at one Dollar per day and only rec'd in that time twenty one Dollars and fifty Cents in Cash, the bal. of his earnings he had recd. in goods from the Store of the Co. and those at such high prices that he was then in debt to the Co. nearly three hundred Dollars. I merely mention this particular case as an illustration, showing that although the Lumber Co. were becoming rich, the inhabitants were becoming poorer every year and as one of the firm (Dr. F. B. Brewer) told me at that time that he knew just how many pine trees the Co. owned and about how much Lumber they would make, and with their present facilities for sawing it would take them about five years to cut up the logs and run the Lumber to Pittsburgh, and said he, we shall leave here and the place will die a natural death. There will be no business the people will have to starve or move, and in ten years the main street would be grown up to grass, and I must say it really looked as if it might come to that as the grass grew in some of the streets at that time. I remained there three days, although my business was completed, (or at least all that could be done there) in a few hours. But the stage left for Erie early on Wednesday Morning and I must wait until its return, so to while away the time I made all the inquiries I could Concerning Oil Creek Township, Oil Creek Lake, and Oil Creek. My inquiries led to a discussion upon the properties of the Oil or whether it was an Oil. And next I doubted its coming from the ground under the Creek. Doct. F. B. Brewer immediately volunteered to pilot me to a point on the Creek, where it could be found without much trouble, and soon convinced me that it came from under the Water. At the same time he informed that it was his opinion that it came from the Hills on each side of the creek, but in this I did not agree with him. I learned that it had been gathered in small quantities by the inhabitants of that vicinity, ever since the first settlement of the place, and from appearances the Indians must have gathered it a hundred years before that. The method adopted by the natives to obtain the oil was verry simple, merely digging holes in the ground, and when they filled with Oil and Water, they spread a piece of flannel or woollen Cloth upon the Oil, which rises on the water and is taken up by the cloth, which is then removed and the Oil wrung out, within ten minutes after my arrival upon the ground with Dr. Brewer I had made up my mind that it could be obtained in large quantities by Boreing as for Salt Water. I also determined that I should be the one to do it. But I found that no one with whom I conversed upon the subject, agreed with me, all maintaining the Oil was the drippings of an extensive Coal field or Bed, and if so there would be no use in boreing as the oil was near the surface. But I could not understand why it was under the Creek if it came from the Hills as it is so much lighter than Water that it would be impossible for it to go down of its own accord.

I immediately returned to New Haven, and commenced negotiations at once, with the owners of the Land for a Lease which was obtained without much difficulty and the following Spring, with my family I moved to Titusville. I found it rather a rough place for a residence but with my family around me I was happy. I then began looking for an experienced Borer. And although I arrived at Titusville on the 15 day of May (1858) it was the 20th day of July before I found a Man that would contract to bore a five (5) inch hole 1000 feet deep and agree to forfeit or lose the pay if by his own negligence or Carelessness he did not succeed in reaching that depth if necessary.

For I had learned from an old Salt Man (or Salt Manufacturer rather) that many of the borers were thirsty souls & preferred Whiskey to any other liquid for a steady drink, and not unfrequenting a hole four or five hundred feet deep had been spoiled by the unskilful management of a drunken Borer, thereby causing a loss to the owner of not only the amount paid for boring but also the time necessary for boring another Well. I was determined not to pay for any mans carelessness. I was willing to pay more than the regular price for the work, which at that time was about seventy five Cents per foot the Borer furnishing his own Engine and Tools. I finally found a man who was willing to contract, to bore a round, smoothe, straight, five inch hole, 1000 feet deep for one Dollar per foot, the borer to draw no pay only enough to pay for the board of himself and Boy and his Tobacco until the work was completed. This man was to have commenced work in July but never made his appearance at Titusville. On the 19th of August I started out to find my Man, at that time we traveled by private conveyance, generally on Horseback for the Roads were horrid, and took about two days to reach Pittsburg. It was not a verry desirable ride to take in hot weather, I had been over the Road twice that spring and knew its difficulties, consequently I was not in the most amiable mood when I started for Pomroy, Ohio. where the man belonged. I learned in Pittsburg that he had left Pomroy for Pittsburg and I never knew what became of him. I then contracted with another Man who was to Come and Commence opperations by the 10th of Sept. the same year this man lived near Tarentum Pa. after waiting until the 19th and not hearing from him, I drove down to see him. I learned that he had not got along as fast as he anticipated, with the Salt Well he was then boreing. But would be on hand sure by the 20th of Oct. I waited until the 17th of Nov. and not hearing from him I drove down to see him. I found he had broke a Bitt in the Well which then about 425 feet deep and he was trying to get the peice out of the Well. I was then advised by my friend Lewis C. Peterson of Tarentum (to whom I shall ever feel under obligation, for his kindness to me at that and other times) to abandon the work for that season as it was getting late and soon it would be stormy weather and rather an unfavorable time to commence work. So I concluded to take his advice, and suspend opperations until Spring. I came home built an Engine House and got my Engine into it fastened the Door and set myself down verry uneasy, to wait for Spring to open, and I did not have to wait long, before it commenced opening by Water I thought, for I candidly believe that it Rained at least four days in each Week all Winter, I never saw such winter weather as they have in that part of Penn, instead of snow knee deep it is mud knee deep. I stayed there six Winters and had good Sleighing but one. In April 1859 I recd a Letter from my friend Peterson who I had kept up a correspondence with, that he had found me a Man, one that would suit me presisely he could recommend him as he had been in his service several years. I immediately went to Tarentum and was fortunate enough to secure the services of Mr. W. A. Smith, and I could not have suited myself better if I could have had a man made to order. He had some small jobs of work on hand which he thought would take about four Weeks to finish up, and he thought best to make me a sett of Tools before he left Tarentum as he had all the necessary tools for Manufacturing them. I immediately procured the necessary Iron & Steele and left him to follow on the first of June. As soon as he arrived at Titusville which I think (was on the ninth) we commenced.

20. COLONEL E. L. DRAKE'S STORY, WRITTEN IN 1879

In September, 1879, a South Bethlehem correspondent of the *Philadelphia Times* interviewed Colonel E. L. Drake and, on the basis of the material secured, prepared the following account which was reprinted in the *Titusville Morning Herald,* September 11, 1879.

Colonel Drake is afflicted with muscular neuralgia, and has been an invalid since 1860. Though emaciated by disease, there is still evidence of a noble frame and a iron constitution—in fact none but the strongest could have sustained life in the many years of suffering that fell to the lot of this man. In stature Colonel Drake measures five feet nine and a half inches, and he is blessed with pleasant features, honest, open, fearless.

No strictly true sketch of Colonel Drake's life has ever been published, though countless newspaper and magazine articles have appeared. He is a son of Lyman Drake, a farmer of Green County, New York, and was born at Greenville, that county, March 19, 1819, and is consequently sixty years of age. He was baptized Edwin Lawrence Drake. He spent his early days upon his father's farm in New York and at Rutland, Vermont, to which place the family removed in 1825. The Colonel was then but six years of age. In 1857 he was sick in New Haven. Among his friends in the latter city were Messrs. Townsend, Pierpont, Ives, and Bowditch, who had loaned money to the firm of Eveleth & Bissell, of New York. Eveleth & Bissell purchased of Brewer, Watson & Co. of Titusville, Pa., the oil which was taken from a spring on their lands. The oil was obtained with a piece of blanket at the rate of a gallon a day, and from it was made the then celebrated "Mustang Liniment." The gentlemen named were finally compelled to purchase the land from which the oil was obtained. When the deeds were brought to the purchaser at New Haven they were found defective. It became necessary to send someone to Titusville and Pittsburgh to have the titles perfected. Colonel Drake, having partly recovered from his illness, was selected to go on this mission. In the hope that the journey would benefit his health he consented. Mr. Pierpont had visited the land previous to the purchase, and had brought back with him some of the "Sineke Oil." This had been analyzed by Prof. Silliman, who regarded it of small importance. This bottle of oil had been seen by Col. Drake, who looked at it as a curiosity, but of no value. Nothing was said of petroleum when he left New Haven, and the owners of the land never thought that the oil would be a source of profit. The Colonel's description of his winter ride to Titusville is exceedingly interesting and graphic. He reached Titusville in December, 1857. Heavy rains had fallen, "and winter was closing in with chill and mud, as it can only on Oil Creek." The blunders of an ignorant conveyancer gave petroleum to the world.

The Colonel's attention was first attracted to the oil while in the stage on the way to Titusville. The driver, Connell, spoke of "Oil Creek." Colonel Drake asked why it was called "Oil Creek." "Because there is oil in it," was the laconic reply. Further inquiries showed that it was being used as a lubricator and for illuminating purposes, and that it was gathered with blankets from shallow pools along the creek. In the store at Titusville he was shown a bottle of the oil. On smelling it he declared it to be "Mustang Liniment." He recognized the peculiar odor of that liniment, the chief ingredient of which is petroleum. He became interested in the oil at once. In the sawmill of Brewer & Watson, near by, he saw the oil used as a lubricator, on the journals of a large circular saw making 1,200 revolutions per minute. It was also used in torches to light the mill. As a lubricator he found it superior to sperm oil. As a lubricator alone he knew there was a fortune in this oil. He also saw that it could be refined and doubted not its value as an illuminator. Dr. Ebenezer Brown (Brewer), now a banker at Titusville, took the Colonel to the Spring from which the oil used in the mill was taken. It was rusty, disgusting looking pool. The Doctor spread a blanket upon the pool and gathered it up in a few seconds, dripping with some dark fluid, from which he wrung half a pint of the oil. Half a bucket or more of the oil was thus secured.

The Colonel was satisfied as to where and how the "Sineke" was obtained. He had already been satisfied as to its value. The sole question now was: "Can the oil be obtained in quantities sufficient to introduce it as a lubricator?" Before Colonel Drake left Titusville he had become satisfied that the oil could be obtained in quantities by boring for it. His scheme was regarded as the vagaries of an insane man. He was, however, nothing daunted. He returned to New Haven fully determined to go back and bore for oil. When he went back he did so as manager of the "Seneca Oil Company," a corporation he had organized.

A new and unexpected difficulty faced Colonel Drake when he was ready to begin operations; he could not hire men "to work for a lunatic." In great distress, he drove to Tarentum, 100 miles away. Here he entered into a contract with a salt borer, agreeing to give him at least 1,000 feet of boring to do. The contract price will prove of interest in the oil districts now. It was as follows: $1.25 per foot for the first 100 feet; $1. per foot after that depth. These conditions were later reversed, and Colonel Drake saw contacts for boring made at $2 to $5 per foot. The salt borer was to come in August. But he didn't. The Colonel went down again, and the fellow promised to come in September. Again he disappointed the now thoroughly vexed Colonel. He went the hundred miles once more. While in the Hotel at Tarentum he accidently learned why the fellow had disappointed him. He never meant to go to Titusville. He regarded Colonel Drake as crazy, and "Thought the easiest way to get rid of him was to make a contract and pretend that he meant to come." After ransacking the country for weeks he at last found another salt borer, who agreed to come and work for him. This man got as far as Pittsburgh, where he died. It was now October, late in the season. Lewis B. Peterson, Esq., a salt manufacture and borer at Tarentum, had become interested in Colonel Drake, and advised him not to do anything until spring. Quite unwillingly he returned to Titusville, housed his engine and boiler and did nothing until spring.

In April 1859, Mr. Peterson advised Col. Drake that he had a man for him, whom he employed. This was William A. Smith of Butler County, who brought with him one of his sons, the two working for two dollars a day. Later two more of Smith's sons joined Colonel Drake's force. Colonel Drake furnished all the tools. Because it had been the custom, an effort was made to crib down to the rock. Water, however, gained too rapidly, and cribbing had to be abandoned.

Colonel Drake was equal to the emergency. He drove to Erie and ordered of Liddle, Kepler & Co., cast-iron tubings in sections of ten feet, which he proposed to drive to the rock. The order was for pipe one and one-half inch thick and three inches in diameter. When it came it was but half an inch thick. The manufacturers had said the pipe couldn't be driven, and if driven he could not bore through it afterwards. Thus everywhere did Colonel Drake encounter the discouragements of the pioneer. Much time had already been lost, and it was determined to drive the half-inch pipe. The first section went home satisfactorily. The second section broke the first at the top. A drive to Erie was again necessitated, and pipe of soft iron 1½ inches thick, were cast. These "drove" all right, striking the rock at 31 feet. Boring was commenced July 1, 1859. On Saturday night, August 29, 1859, a depth of 69½ feet had been reached. Work was suspended for the Sabbath, a day always scrupulously observed by Mr. Drake. On Sunday, August 30, the old man Smith walked out to the well and found it full of oil. He dipped up a barrel of oil, and Col. Drake's insanity was dissipated in an hour. He had been successful.

The well never flowed. A pump was rigged in and the well yielded 25 barrels a day. He constructed large vats, capable of holding about six hundred barrels. It was difficult to get barrels in that country. He found, however, in nearly every cellar about a large or smaller number of whiskey barrels, which, after being soaked, made excellent oil barrels. He did a right thrifty trade in whiskey barrels, and besides having his vats full had about three hundred barrels filled. It was at this time, while away from home and on his way back, he met a man on horseback, evidently greatly excited, who stopped the Colonel to inform him that his works had "all burned up, slick and clean, engine and all." Colonel Drake was never nervous, never agitated, and proof against surprises. In a nonchalent manner he asked, "Did the hole burn?" "The fellow got mad," says the Colonel, "but it was a great relief to me. So long as the oil well remained the works could be rebuilt." And they were rebuilt within thirty days, after which the question of the disposal of the oil had again to be met. One hundred barrels, at a price not remembered, were sold to a man named McKeown, a druggist at Pittsburgh, who also refined oil, as an experiment. Erie, Cleveland, Cincinnati, Pittsburgh, Philadelphia and New York were visited successively in the effort to build up a commerce for petroleum. The undivided and tireless efforts of Colonel Drake were finally crowned with success. The Drake well yielded probably

3,000 barrels of oil. He bored only one other well and that didn't yield much oil. The Seneca Oil Company sold out, and Colonel Drake operated individually until 1864. In that year, in consequence of ill health, he was compelled to relinquish his business, and after all his hard work, he saw the following years (1865) the greatest idlers making fabulous sums of money on the oil he discovered, and in the boring and introduction of which he spent not less than $10,000, while his own hands were tied by illness. The last $500 used in the work on the Drake well were borrowed by Colonel Drake on his individual responsibility.

21. William A. Smith's Story

In the spring of 1859 Colonel E. L. Drake employed a blacksmith and salt-well driller, William A. Smith of Salina, Pennsylvania, to make some drilling tools and to work as a driller on the Drake Well. Smith arrived in Titusville about the middle of May; he went to work the next day; and he assisted Drake in completing the well. In January, 1880, "Uncle Billy" Smith, as he was familiarly known in the oil region, returned to Titusville for a visit. A reporter of the *Titusville Weekly Herald* interviewed him about his experiences at the Drake Well and prepared the following story which appeared on January 15, 1880.

Mr. Smith who is a blacksmith by trade, has still the appearance of a hale, hearty man, and though somewhat below the middle stature, his broadly built frame indicates that in earlier days he was a true son of Vulcan. The snow-fall of times seems to have dealt somewhat gently with him for instead of the bald, wintry head that we expected to see, he displayed iron gray, though almost bushy hair, with full heavy whiskers of the same time-tinted hue. Though his face bears unmistakably the furrows of age, his clear restless gray eyes, and evidently remarkable memory, stamp him as likely to exceed the allotted span of human existence, while the only drawback to his natural faculties seems to be deafness.

Being asked his age, he replied:

I shall be sixty-eight on the 19th of the coming March.

Reporter: Have you always enjoyed good health, Mr. Smith?

S.—Pretty fair. About four years back, I was unable to work, through sickness for some little time.

R.—What was the nature of the illness?

S.—Well, I think it was general debility, but I got some grains of wheat, and burned them like coffee beans, and so made a kind of coffee out o' them. After drinking this awhile, I got better and have never been badly troubled since.

R.—Do you work your farm yourself?

S.—Yes, when I'm able. I've rented it a good many times but always found that a losing game.

R.—Have you any income besides that you get from the farm?

S.—No—that's all, and that scarcely pays the interest on the claims. There was a sheriffs sale on it a little while ago, but the Oil City Exchange kindly raised some money and part of the claim was paid, though there's still a lien on it.

R.—Have you any family?

S.—Yes, three grown up sons, James, William and Samuel, and three daughters living. My youngest girl died of Diphtheria while I was working on the Drake well. She was going on seventeen at the time. The boys all worked on the Drake well at different times.

R.—Where are the sons?

S.—William is in Rochester clerking in a store. James and Samuel live here in Titusville. Samuel works at J. H. Davis' planing mill, and James is doing nothing.

R.—And the daughters?

S.—Well, two live here and one at Northeast. Margaret lives at Northeast and is married to Charles Irish. Ellen is married to James Dugan, of Titusville, and Adeline, her twin sister, is married to Tobias Williams here.

R.—Have you got a wife, Mr. Smith?

S.—My first wife died on the 6th of November, 1869. In 1872, the 6th of August, I was married again and in six weeks from that I was a widower again. In 1878, on the 6th day of January, I married a third wife and on the 15th day of February 1874, she brought me a son and I called his name "General Grant Smith." In 1875 she fetched me another one, about the month of March, and I called his name "General Washington Smith."

R.—When do you say you were born?

S.—I was born on the 19th of March, 1812, and I'll be sixty-eight this next March.

R.—And you're the old, original driller of the county, eh?

S.—Yes, I drilled the Drake—the first we drilled in the oil country.

R.—When did you come to the Oil Region?

S.—I came first in 1859. Drake was here then and I came for him.

R.—Where from, Mr. Smith?

S.—I came from Selina, twenty miles this side of Pittsburg. Its called Hite Station now. Its on the West Penn road, about a mile and a half from Tarentum.

R.—What used you to do there?

S.—I carried on blacksmithing, working mostly for the salt works and salt wells.

R.—How came Col. Drake to get hold of you?

S.—They been getting oil down in Selina since 1844. Mr. Drake had seen them pumping it. He had been to Selina several times and when he went into the Seneca Oil Company with his New Haven friends, he came to me. He had hired men three times before, but they didn't go. I was about quitting blacksmithing at the time to go on a farm, and a man named Lewis Peterson told Drake of me. Drake was on his way to Pittsburg and Peterson was to see me before he came back. When he came back Peterson brought him to me and we made a bargain. I asked Drake if he had any tools. He told me I had better make some and fetch them with me, so I made them and he sent a team to fetch them all up.

The first night I came to Titusville I stayed in the Eagle House, and the next morning went to see Mr. Drake. He was sick and I told him to get the man that brought the tools to come down to the oil spring. We called it an oil spring then. This man Cord Redfield, took me around and showed me everything about the spring; that was on the 19th of May '59, and on Saturday, the next day, I went to work.

Mr. Drake wanted my opinion by Monday on the oil prospects. About 10 o'clock that day he come. There was a saw mill about seven or eight rods off, and the hands all stopped work to hear what I had to say.

Mr. Drake asked me what I thought his prospects were. I said very good. I told him I would not be afraid to insure him ten barrels a day. He said, stop! half that will satisfy me. I said no, I would sooner say twenty barrels, but he said again that half ten would do for him, and I told him he was sure of not less than ten.

We went to work and I wanted some driving pipe right away, but Mr. Drake thought we could get down without.

Before I came there had been eight men at work six weeks and only got the cribbing down eight feet. I told them we couldn't possibly get down without driving pipe to keep the water out. We rigged up a plank pump with a sucker eight inches square, and the next morning I commenced to put my curb down. I got a six foot piece down and eighteen inches of the second one when the water came in so fast that we had to work knee deep in it. It was so cold that we couldn't work more than ten minutes at a time. Well it still kept raising on us, although the pump was throwing a big stream of water. I got an iron rod and run it down the hole but touched no rock. When I drawed the rod the water gushed out at a big rate, and we had to get out with our tools. The crib was about sixteen feet deep and there was water enough in it to drown us all. I saw it was no use trying to get down without driving pipe.

There was a lot of five-eighth inch rods lying around and I welded two together and run them down but they wouldn't reach any rock. I put a third one and struck what I thought was rock at twenty-six feet. Next I commenced drilling in this rock and got into gravel again. Our pipe was small, about two and three-quarter inches and the tools wouldn't go into it after two feet, so that we wanted a new set of tools. I told Mr. Drake if he did'nt get me what I wanted I would go back home. He said you go and move your family here and give me a list of all you want and I'll get it. He got fifty feet of driving pipe, but there were no bands on pipes and I made some myself. On the 9th day of August I got ready for driving and drove 49 feet 8 inches of the pipe and came on the rock there. I commenced drilling, and on the 12th day of August, at 4 o'clock, I struck the oil. Mr. Drake was there with a lot of others. I found my tools drop and kept watching in the pipe, which had water in about four feet from the top. In about five minutes I saw the oil come up. I says to Mr. Drake, "Look there! What do you think of this?" He looked down in the pipe and said, "What's that?" I said, "That is your fortune." He said, "Stop drilling—take your tools out." I said we had better drill deeper, but he would not let me. We stopped and drew the tools. There was a little thin pipe about three inches round there and I drove a plug in the lower end and sank it into the oil. It held about half a gallon, and I dipped out the oil as fast as I could.

Mr. Drake called Jonathan Locke at the saw mill to stop the mill and bring his hands. They all came, sixteen or eighteen of 'em. Drake said just look there what Smith has done, and Locke said, good! why we all thought Smith was crazy, and look what he's got now.

On the next Monday Mr. Drake came to Titusville and got a tin pipe about twenty-five feet long. We got a little pump, too, like a water well pump used in houses, run our pipe down and worked the pump by hand. For a tank we got an old cask and in this way we pumped from eight to nine barrels a day. We kept on dipping the oil out of the cask with pails and putting it into barrels. Mr. Drake went to Erie to get tubing and I put in a seed bag when we got twenty barrels a day. My eldest son was pumping then. One day I thought the tank was not filling up fast enough and went to see if the oil had stopped. I had a little lamp in my left hand. A little streak of light, like a flash of lightning, went to the oil, set everything in a blaze and in two seconds everything was burned up including the little house I lived in. This was on Friday and on Saturday it rained very hard, so that the best I could do was to hunt up what things I could save from the wreck of my house.

This was the day after the fire, as I have already told you, and while I was engaged picking up what I could find Mr. R. D. Fletcher came down from Titusville. He had a kind sort o' look about him and seemed sorry for our misfortune. After walking around a little while he noticed a cook stove all burned and broken and said, "Smith what can I help you to?" I felt very downhearted and told him he was very kind, but I hardly knew what he could do for me. He knew, though, and without saying a great deal more he rode up home. Pretty soon there came a team stacked up as full as it could hold. There was cook stove, flour, meat, dishes of all kinds, furniture, bedding and a whole house full of goods, sent by Mr. Fletcher, for the use of me and my family. I shan't forget Mr. Fletcher very soon for his kindness to me then, for, if it hadn't been for him I should ha' been in hard shape, though I must say, the mill hands and others around there were all very good.

When the fire happened Mr. Drake was away in Erie and knew nothing about what occurred. He was coming home on the day after the fire when two men met him. They asked him if he knew about the big oil spring being burned up. He said "no." They told him it was all burned up. Mr. Drake looked astonished like and said "Is anybody hurt?" They said "no" and he said "that's all right then, I'm glad of that."

On Monday, Mr. Drake came down to the spring. I was still gathering up the things and he called out, "Hilloa Smith, I think you have had a black frost here."

I said it was too black for me. He said, "Oh! that's all right, Smith," and we went to work and started up again.

We got started up on the 7th of November, and singular as it might be the well did thirty-two barrels a day right away from that time. It kept on averaging that for a year, too, although it was never pumped on Sunday.

I kept on pumping away after that, and stayed there three years, all but from the 7th of April to the 11th of May—that was all the time I wanted of being three years there.

Then I left and went home to Wenfield township in Butler county, where I live now or kind of stay there. When I left Mr. Drake got a man named Clark in my place. He worked there a whole summer, but could get no oil out of the well of any account. At last Mr. Drake gave him money to come to me and fetch me up. He never came nigh me though. He went as far as Oil City, stayed there a while and then went back, telling Mr. Drake he couldn't get me.

The next fall or the fall after that I come up and went to work on the well again, and I could pump my thirty-two barrels a day regular. I stayed there from fall to spring when I left and went home again. That was the last time I ever worked at the Drake well.

Here Mr. Smith ended his interesting story of the Drake well and the infant struggles of Oildom, but thinking the old gentleman might have more points of interest treasured up in the storehouse of his memory, he was subjected to a cross-examination on the points as follows.

Reporter—Have you any of the tools in your possession used on the Drake well at any period of its existence.

Mr. Smith—Yes, I have the rope socket, sinker-bar and jars, the temper screw, one reamer, one second sized bit and a center bit all used in the Drake well. Besides that I have two sand pumps, and the wrenches and clamps.

R.—What was about the weight of your drilling tools then.

S.—I suppose they would have weighed about 850 pounds.

R.—What was the size and length of them?

S.—The stem was twenty-five feet long and about 1¾ inches thick. The jars were steel lined and I made them years before I made the first set of steel lined jars, myself, that were ever made. Mr. Bryan that used to be in business in Titusville before he died claimed the patent, but he had no right to.

R.—When did you make the first set.

S.—It was somewhere about the 14th day of June 1845. They were made for a man named Israel Overall. He was drilling a salt well for Joseph Crawford below Selina.

R.—You got some oil down in those salt wells in those days too?

S.—Yes, oil was struck in 1844 by a man named Joseph Doty. He was drilling for salt near Selina, for a man named Peterson. When he got the well drilled to its regular depth he said it was not worth while to put in the tubing—it was a dry well. Mr. Peterson says "I will tube it if only for the name of the thing," and went after the tubing. He tubed it and it proved to be a good paying well. It was some 860 feet deep, and about a month after the tubing the oil began to come. This was in Allegheny county, and it produced six barrel of oil a day, besides making thirty-six barrels of salt.

R.—That was the first oil ever obtained, I believe.

S.—You're right! That was the first oil ever got from a well anywhere in this country, as far as I know.

R.—What use did they make of it at that time?

S.—No use at all. They didn't know what it was good for and so run it off into the old Pennsylvania Canal, because nobody wanted it.

R.—How did they ever find out that it was valuable?

S.—It was like this: Mr. Peterson offered $5 to anybody that could make anything out of it—you couldn't burn it. At last I got some of it and ran it through some charcoal, and after doing this we found it would burn very well in a coaldiggers lamp.

R.—Did that bring any buyers out?

S.—Well, it got talked about, and soon Mr. Samuel M. Kier, of Pittsburgh, offered 25 cents a gallon for it.

R.—What did he do with it?

S.—Why at first he turned it into a quack medicine; advertised it and made a heap of money out of the sale. He claimed it would cure everything and kept selling away like a good fellow for a year at least. At the end of that time Mr. Peterson charged 37 cents a gallon.

R.—Did Kier still keep on selling the cure-all?

S.—That kind 'er played out after a while and along about the second year Mr. Kier got to refining it. He was the first refiner in the oil country and the father of the Standard Oil Company and all other refiners. He carried on the business for a number of years and made a good deal of money out of it.

R.—Did anybody else get into the business then?

S.—Jonathan Watson had some fetched up here to Titusville and refined.

R.—Did it soon get common for lighting purposes?

S.—About Pittsburgh and round there it did.

R.—What kind of lamps were the first used?

S.—A good deal like the common ones used now—I don't see much difference, except in the fancy lamps.

R.—Did it give as good light as the refined does now?

S.—Just as good for all the difference I see.

R.—The price of crude went up, I suppose?

S.—No; the highest price I heard of in those days was the thirty-seven cents a gallon paid to Mr. Peterson.

S.—There was a little thing occurred while I was working at the Drake well, but I don't know as I ought to mention it.

R.—Oh! but you might as well finish your story now.

S.—Well perhaps I'd better. So, I'll tell. It was at the time we struck oil in the Drake well. Mr. Drake and some twelve or fourteen others were standing around. Among the number was Jonathan Watson. All at once Mr. Watson says:

"Men! I want you to take notice of what I am going to say and not forget it."

Nothing was said for a while, when Dr. Shugert said: "What is it that you are going to say?"

Mr. Watson then said: "If ever any man gets as good a well on my lease I will make Smith a present of as good a well as the Drake well is."

Mr. Watson got a good many wells after that, some that run as high as 150 barrels on the same farm, but he forgot his promise and old Smith. James Donnelly told me afterwards that I could make Watson pay for all that, but I never asked him for it.

Watson told me afterwards, too, that I ought to get a paper up and go around to the oil men, and they ought to raise me as much money as would keep me a lifetime, and that he would put down $1,000 towards it. I never got up the paper though, and you may be pretty sure I never got the money either.

I may as well tell you, too, that Mr. Drake told me if he hadn't have got me at the time he did, he would have given the idea of the well up altogether. He had hired men several times before but they all failed to go to work, and when he came to me that was the last attempt he ever intended to make. If I hadn't gone to work for Mr. Drake at that time, oil might never have been found to this day, and I told Mr. Drake several times that he would never have got another man to drill for him.

This was the end of Mr. Smith's story, and we cannot but think that his history, as far as it relates to oil, is an interesting one. In his old days he has but a precarious and inadequate income to sustain him in his declining years, and Oildom, with her great wealth, might easily raise the small amount necessary to light him to the grave. The Oil City Exhange has already generously contributed to his wants, and it may be (who knows?—we can never tell how these things work) that like institutions in other places, will some day take like action.

22. Recollections of Samuel B. Smith and James P. Smith

When William A. Smith came to Titusville in the spring of 1859 to assist Colonel E. L. Drake in drilling the oil well, he was accompanied by his sixteen-year old son Samuel, who helped his father with the work. In 1909, fifty years after the completion of the Drake Well, a reporter of *The Oil City Derrick* interviewed Samuel B. Smith and prepared the following story which appeared on August 27, 1909.

As Samuel B. Smith now recalls it, Colonel Drake had visited Tarentum several times in search of information and workmen before he put in an appearance at the blacksmith shop, then owned by his father, William A. Smith. Colonel Drake explained to the Tarentum blacksmith that he had been sent by Lewis Peterson, who owned a number of salt wells in the neighborhood, and that Peterson had said that he (Smith) had often been called on to repair the machinery used in the drilling of salt wells; also that he had been told that he (Smith) was the man sent for to turn the screw and to do the actual work of the drilling when unusually difficult problems were encountered. Mr. Drake explained that he needed just that kind of a man to take hold of the oil well which he was trying to get down near Titusville and he wanted to know whether Mr. Smith could get away and, if so, how soon. The blacksmith replied that it would take a few days to wind up his business at Tarentum, but that no delays need be encountered on that account for the reason that some little time would be required to make the tools needed in the drilling of an oil well. And he explained to Colonel Drake that he could make the necessary tools in his own blacksmith shop and ship them to Titusville quicker and cheaper than he could manufacture them in the shops at Titusville, which would be new and strange to him.

Accordingly Colonel Drake at once closed with William A. Smith. Students of oil economics will be interested in knowing the exact price paid the first oil well driller, William A. Smith. Samuel B. Smith says that he knows what his father's wages were; that his father received $2.50 per day for his services in connection with the drilling of the Drake well. But, he laughingly explains, that he does not know what his own wages were, for the simple reason that Drake and his father followed the customs of 50 years ago and the services of the 16 year old boy were "thrown in."

Thus it happened that to Tarentum, Allegheny County, belongs the honor of having turned out the first set of real oil well tools in the world.

Three of the Smith boys, James P., William B., and Samuel B., helped their father in the work of forging this first set of tools and William A. Smith, in laying his plans for the Titusville oil well tools, naturally turned his attention towards the utilization of the tools most familiar to him, the tools he had so often used in connection with the work of drilling the Allegheny County salt wells. Without the assistance of anyone, except his three sons, he forged out bits, temper screws, jars and sinker bars, similar to those used in the drilling of oil wells half a century later.

It was about the last of March, 1859, before the tools were finished and William A. Smith left Tarentum for Titusville, accompanied by young Samuel B. Smith and a grown-up daughter, Miss Margaret Smith. Kimball Hibbard, son of the man who for years ran the Eagle house at Titusville, brought father, son and daughter all of the way in a large spring wagon. The oil well tools, forged with so much pains, were loaded into that spring wagon and carted all of the way from Tarentum to the Titusville Upper Mill.

One of the first things that Samuel B. Smith now recalls in connection with the work of the oil well is that Colonel Drake told him to "show up" at the Upper Mill at 9 o'clock in the morning and "help hunt for coal," the idea being that coal was the best possible fuel for use in connection with the drilling of the well. Smith, Sr., Smith, Jr., and Cord Redfield were selected to go on this coal-hunting expedition. Everything was new and consequently interesting to this boy, not yet quite 16 years of age. Titusville he remembers as a struggling village of perhaps an hundred houses scattered along Oil Creek valley, the country regions in the neighborhood being very sparsely settled at the time. All day the Smiths and Redfield hunted for coal along the hills and through the creek valley. Night came but no coal had been discovered. Finally it was decided to fall back upon wood from the Upper Mill for fuel. Whenever coal was needed in connection with the dressing of the tools it was hauled in wagons from the little town of Union Mills to the north and west of Titusville.

"When we reached the Upper Hill the men who had been working for Colonel Drake had built a single story engine house, perhaps 16 by 24 feet in size and this engine house was located only 20 or 30 feet away from the spot where the first derrick was afterwards erected," explains Samuel B. Smith. "The first thing that my father did was to partition or sub-divide that engine house into two rooms; a bedroom and a kitchen. Afterwards my father built a sort of lean-to or addition to the engine house that we made over to live in. And I have always said that the arrangement was quite comfortable when compared with some of the tents and shacks that I have been in even during recent years."

Thus it happened that to William A. Smith's eldest daughter, Margaret, then a young lady of about 24 years of age, now Mrs. Charles Irish, of Bradford, Penna., fell the honor of cooking the meals and keeping house in that remodelled engine room for the first oil drillers in the world.

As soon as the temporary home had been fixed up William A. Smith started to work building an new engine house to take the place of the old engine house just converted into a living place. In this connection it is interesting to note that a single building was used for both the engine and boiler; none of the machinery being out of doors as was generally the case afterwards. Quite a difference of opinion has existed as to the kind of engine used in drilling the Drake well. Some authorities have insisted that the engine was a Faber engine built by the Faber Company of Pittsburg. Samuel B. Smith says he is positive the engine was not a Faber, at least he has never been able to find a Faber engine in any way resembling it. To the best of his recollection it was an Erie engine, although he says he cannot prove this. One detail he does remember and that is that it had a regular iron frame and not a wooden frame like the Faber engines of the period. He says it was an engine with a short stroke, from 12 to 18 inches. The boiler was a stationary boiler and was built into a solid brick and stone wall. This boiler had only a single flue and Samuel B. Smith says the remarkable thing about it is that he has never been able to find another single-flue boiler of this particular type. Yet it was not of course constructed for the express purpose of using it in connection with drilling oil wells. It merely happened to have some unique features about it not found in the ordinary boilers of those times.

When Samuel B. Smith first started in with his father at work on the Drake well all of the big square timbers for the derrick were framed, ready to be put together. And to Samuel Silliman, a Titusville carpenter, has been given the title of "The First Rig Builder." For he did most of the actual work of planning the derrick and framing the timbers for the rig.

"I thought that rig raising one of the most interesting of all the things connected with the drilling of the first well," said Samuel B. Smith during the course of an interview. "The raising was done by volunteers much like the old-time barn raisings, known to every farmer in the United States. I guess 20 or 30 men must have been there at the time. Probably Colonel Drake did not need that number of men, but the men were there just the same. Some came from the Upper Mill, some from the Lower Mill and some from Titusville. For though Titusville people did not quite understand Colonel Drake and his oil well, they were all greatly interested in what was going on. And whenever they could be of any help, as in this matter of the derrick raising, they were not only willing and anxious but even eager to help.

"It must have taken at least an hour to raise that derrick. The boards were not nailed on by the 'crowd' during the afternoon of the derrick raising. They were placed in position the next day. And when they were finally nailed on the derrick was not boarded all of the way to the top."

This statement of Mr. Smith's that the boards were not nailed on all of the way up to the top will be something of a surprise to those who have seen the pictures of the so-called original Drake well. For those pictures show a structure boarded all of the way from the top to bottom. Mr. Smith says those pictures were taken in good faith by Mr. John Mather, the photographer who came to Titusville about the time of the drilling of the Drake well and who is said to have the finest collection of oil well pictures in the world. But Mr. Smith explains things in this way. The first derrick caught fire and was burned down in the fall of 1859, only a few months after the discovery of the oil. It was the second derrick of the original Drake well, which through photographic reproduction, is known to oil men the world over; not the first derrick. The boards which were placed in position on the first derrick ran up to a height of about 16 feet, according to Mr. Smith.

The exact date of the raising of that first derrick Samuel B. Smith personally has no way of determining, but he is of the opinion that it could not have been more than two or three weeks after his arrival in Titusville. The first derrick—that is the one which burned down in the autumn of 1859—was nearly 40 feet in height and was about 12 by 12 feet at the base and 3 by 3 feet at the top. And no sooner had it been completed than Colonel Drake and William A. Smith began the work of putting in the machinery. The first thing placed in position was the bull wheel. Colonel Drake may have built better than he knew but the fact remains that with the machinery above ground, as in the case of the tools worked below the surface, while there have been thousands and tens of thousands of inventions, innovations and improvements, the underlying principles remain essentially the same.

One thing which caused them to lose much time on the surface well was the creek, at that time only 150 feet away, was higher than the lower levels and the water worked through the loose gravel freely. Mr. Smith says that after he had reached a depth of about 16 feet Colonel Drake abandoned that particular proposition as a "bad job."

Finally Colonel Drake "dug up" somewhere, two joints of cast iron pipe, each joint perhaps nine feet in length. This pipe was driven into the ground through the use of a battering ram lifted by an old fashioned windlass which had already played an important part in the removal of the surface dirt from the well.

"I cannot tell you why my father did not use the engine," said Smith. "The question as to why he did not do it that way has never occurred to me until I was asked why. That he did overlook it, I am sure. I ought to know because I helped to drive that particular pipe by hauling up that battering ram with that windlass myself. And pretty hard work it was too. The battering ram was eight or nine feet in length, made of hard wood—white oak I think." Those two length of pipe would not answer the purpose. Then Colonel Drake procured a pipe, somewhat smaller in size.

As Mr. Smith remembers it, there were three sections of this smaller pipe, each section being about 10 feet long. Once again was that battering ram and the accompanying windlass started, and the pipe was driven down the three lengths, making about 16 feet in position in the surface water, which had collected in the well dug by hand, and

14 feet in position in the underlying sand and gravel—about 30 feet in all. But the water poured in just the same.

Colonel Drake was just about this time having troubles financial with the stockholders of the Pennsylvania Rock Oil Company. He was out of funds and it was not until R. D. Fletcher and Peter Wilson had endorsed his note for $500 and Mr. Fletcher had told him that he could have all the credit at his store that he needed that it was possible for a move to be made in any direction.

In this connection Samuel B. Smith says there was something about Drake which made the men who were personally associated with him seem to want to stick by him through thick and thin. He says that he never saw a man seem to think so much of another man as his father appeared to think of Drake. He recalls the fact that earlier in the season William A. Smith had been offered $4 a day to take charge of a blacksmith shop in Franklin, a permanent place. Though Drake was paying the senior Smith only $2.50 per day and though the "oil well job" was an uncertain proposition, William A. Smith refused the offer because he "simply couldn't quit Drake."

There have been many differences of opinion as to the exact date when oil was "struck" or "discovered" at the Drake well. Most of the experts agree that it was a Saturday in August, 1859. Mr. Smith says he has no records to prove which Saturday, but of one thing he is certain, and that is that the work on the well was not recommenced; that the actual drilling was not begun until some time after August 2. He was 16 years of age on August 2, 1859, and he distinctly remembers that the reunion of the Smith family at their little house at the Upper Mill occurred on August 2; that the members of the family, who had been living at Tarentum all summer, reached Titusville just in time to help him celebrate his 16th birthday.

"After that things began to hum at that well," continued Samuel B. Smith. "Without any more delays, without any fishing jobs, as soon as the pipe reached the well, things were driven right through to the finish. I guess the pipe must have reached the Upper Mill about a week after my birthday. But when it did come and when things were all ready, I do not believe my father could have been more than a week in driving the pipe and finishing the well. He drilled it by turning the screw, much the same as the screw is turned nowadays at the most up-to-date plant in the country. A sand pump was used much the same as it is used nowadays in connection with the drilling of wet holes."

Mr. Smith was asked why it was that his father was so confident of finding some oil at the oil springs when modern drillers, with modern methods, are never confident. He said: "That was because my father had so often found some oil in connection with the drilling of the salt wells at Tarentum. He knew what he could do there and he figured that he ought to be able to do something like it at Titusville. I do not think that he expected to be able to get the oil at so shallow a depth as 69 feet. Nor do I think he had any idea of going as deep as drillers go nowadays. But he must have expected to go deeper than 69 feet because he had a cable perhaps 200 or 300 feet in length."

According to Samuel B. Smith, there was nothing of the gusher type about the first oil well. The oil itself was of a thick, dark greenish color, with a yellow tinge. William A. told Samuel B. Smith to rig up the tin tube or pitcher pump. Accordingly, the 16 year old boy got down the pitcher pump and started in with the first real pumping of oil from the first real oil well.

The next logical step was to find some place for the storing of the oil. Latter-day tank builders would smile not only at the size of the tanks but at the crudity of the methods employed. For the first oil tanks were made out of plain pine boards or planks secured from the Upper Mill. And to Samuel Silliman, the Titusville carpenter, who, it will be remembered was the "first rig builder," is also given the added title of the "first tank builder." For it was Mr. Silliman who gathered the timbers together and constructed two tanks, holding a few barrels, one a little larger than the other. And, as Mr. Smith recalls it, while Mr. Silliman was building the first oil tanks Colonel Drake was gathering up all of the empty barrels that he could find around the town of Titusville and preparing to make the first real oil shipments known to history. Some of the oil was shipped to Pittsburg to Samuel Kier, who has been called "the first oil refiner."

Samuel B. Smith remained with the Drake well for nearly three years after the discovery of oil, removing to Butler county and enlisting in the Sixth Pennsylvania Heavy Artillery, serving in the Union army during the Civil War. Naturally during those three years he became very familiar with the Drake well and the property upon which it was located. Regarding production Samuel B. Smith says that at the time it seemed to him as though a great deal of oil was being taken out and as though the Drake well ought to have been a paying venture.

While there has been considerable discussion regarding the production of the Drake well, Mr. Smith says that much of it is mere guess work since nobody thought of gauging the well during the first 24 hours, and afterwards, during the lifetime of the well, there were no pipe line statistics to fall back upon. Personally, Mr. Smith says, he has reached the conclusion that it was naturally about a 10 or 12 barrel well.

Colonel Drake at once ordered piping for the well. The piping was lowered into the well through the use of the bull wheel. Near the bottom of the piping, and taking the place of the modern packer, was fastened a leather bag filled with flax seed. This seed bag was about two and one-half feet in length. As the flax seed of this "flax seed poultice for the well," as the men from the Upper Mill jokingly called it at the time, commenced to swell under the influence of the moisture the effect desired—the shutting out of the water was obtained. Mr. Smith says that after this piping, with its seed bag attachment, had been placed in position, the average production of the well increased slightly. According to Mr. Smith, the production continued with considerable uniformity and regularity up to the time of the burning of the derrick in the fall of 1859.

Samuel B. Smith tells a very interesting story in regard to that first oil well fire. William A. Smith and his family were still living at the well when the senior Smith thought he heard something "going wrong" with the pumping machinery. Taking with him a petroleum lamp he started out to ascertain the cause of the trouble.

Mr. Smith, senior, in his investigations as to the reasons why the pumping machinery was not running smoothly, was hardly prepared for the explosion which followed. Probably he was not so greatly to blame. For it has taken the world a long time to learn the lesson that an ordinary petroleum lamp and an oil or gas well, while things all very well and good in their way, are nevertheless like matches and gunpowder, fire and tow, things better kept wide apart. Fortunately, no one was injured. The flames after burning the derrick—the original derrick of the original Drake well—spread with great rapidity to the remodeled engine house. So rapid indeed was the progress of the fire, that Colonel Drake afterwards told the Smiths they "were lucky to escape with their lives."

Samuel B. Smith recalls an interesting point in this connection. Several weeks after the fire, when the derrick had been rebuilt and production resumed, the Drake well, which, after the introduction of the flax seed packer, had been running along fairly, evenly at a rate of perhaps 15 barrels per day, suddenly started in at a gait of perhaps 20 barrels and maintained that rate of production for several months. "The reason I recall this so well," explains Mr. Smith, "is because there was quite a lot of discussion among those interested in the well as to what connection there could possibly be between the burning derrick and the increased production of an oil well."

During the three years that Samuel B. Smith worked at the Drake well several additional attempts were made to find oil on the farm upon which the first Drake well was located. Upon Mr. Smith's return at the close of the Civil War he found that a number of additional wells had been drilled in the neighborhood of the Upper Mill. And since that time many other attempts have been made to find oil in close proximity to the world's finest oil well, the results showing widely different records of successes and failures.

In this connection it is interesting to note that so far as the tools with which the first well was drilled are concerned the only thing remaining at Titusville which played a part in the actual operation of Colonel Drake at the time of the drilling is a small anvil—so small in fact that almost any person would be quite likely to vote it a toy. Nevertheless it was "built for business" by William A. Smith, the father of the present owner. But when used in connection with the operations at the original well it did not figure as an anvil. It was used as a reamer to break down the rock. This reamer was a little larger and heavier than the bits used in the sinking of the hole. And William A. Smith, who had been most of his life a worker in iron some way, became convinced that a heavy reamer would have advantages not possessed by the two bits that he forged.

The men who helped in the drilling of the first oil well did not know that they were making history and quite naturally they did not think much about the saving of the tools as curios and relics. But fashioned into a reamer this anvil was handed down from William A. Smith to Samuel B. Smith, from father to son, more because of the family association of ideas than because of any possible association of ideas with the first Drake well.

On February 21, 1897, E. C. Bell interviewed James P. Smith, son of William A. Smith, the driller, and a brother of Samuel B. Smith, concerning his recollections of the Drake well. The interview, which follows, is taken from Bell's *History of Petroleum: Life of Col. Edwin L. Drake,* "The Bugle" Print, Titusville, 1900, pp. 115-119.

The Drake well was the first ever drilled, up to that time, for oil, no matter what may be said or written. The reason Drake was called "crazy" arose from his announcing that he was going to produce Seneca oil by means of an artesian well.

We did the first day's work on the well May 20, 1859. The drill tools were made at Tarentum by my father and brought to the well when he came. They cost $46. Two extra boxes $2.50; four extra pins $4.00 and 16 sets sucker rod joints at $1.50—$24.00; the whole outfit making an expense of $76.

The latter part of July, 1859, my father went to Salina, on the Allegheny river, where, for many years he had lived, and moved his wife, family and household goods to a small house near the well at Titusville. My mother with the family came by stage, but the household goods were taken down the river on a steamboat to Beaver, transferred at that point to a canal boat, conveyed by that means of transportation to Meadville and then 28 miles across the country by wagon to their destination. Kim. Hibbard, a teamster of Titusville, did the hauling from Meadville. The house we occupied, although, at first, not very roomy, was afterwards enlarged by an addition.

At the time the well was drilled quite heavy forest covered the creek flats in that vicinity. But, after the discovery of oil, it soon disappeared.

My father made the patterns for the drive pipe and it was cast in Meadville. We first tried to drive pipe procured in Erie, but it proved so brittle that we were compelled to wait for the casting at Meadville.

The sand pump, used on the well, was made of copper. To pump the sediment from the well the rope socket was unscrewed from the tools. A thread on the upper end of the sand pump was screwed into this and then lowered into the well by means of the bull-wheels. It was a slow process. Sand pump reels were not used on the creek until sometime after the Drake well was completed.

We finished the well on Saturday, August 18, 1859. When we finished the well on Sunday oil and water were flowing from the mouth of the drive pipe.

To pump the well, Col. Drake first used a tin hand pump. This was done to secure the oil until he could procure tubing from Pittsburg. The tubing was made of copper and to make it tight we had to solder the joints together. The well started off at 35 barrels.

My father was born on a farm at a place known as Hubb Run, Winfield township, Butler county, Pa., March 19, 1812. At the age of ten years he began the apprenticeship of a blacksmith in Freeport. After completing his trade he opened a shop in Pittsburg where he did a large business. About 1850 he located in Salina, near Tarentum, to carry on a shop, in which to manufacture tools and do blacksmithing for drilling salt wells. He did work for James Kier, Thomas Kier, Huff, McCormick, Carns, Irving, Peterson, Sproll, Marvin and Donnell. He remained there until he went to drill the oil well for Col. Drake at Titusville. He was in Drake's employ about two years, then went back to his farm at Rough Run, Butler county, Pa. There he remained until 1864, when he returned to Oil Creek, and, for a time, was in the employ of the Watson Petroleum company located on the Watson flats between Titusville and the Drake well. He again went to live on his farm, and there spent the concluding years of his life. He died from a sudden attack of sickness July 27, 1890.

Yes, oil came up with the water pumped from some of the salt wells at Tarentum. Two of the wells, that gave off small quantities of oil with the salt water, were located on the right bank, descending the Allegheny river. On the opposite side of the river but one well gave off oil. The quantity amounted to perhaps a barrel and a half a day.

From the completion of the Drake well in 1859 until 1882, I followed oil well drilling. In 1861 I put down two wells—one in each end of the old saw mill which stood about thirty rods north of the Drake well. At the time the mill was owned by F. W. Ames & Co. The mill water power machinery was used to drill the wells.

23. MARGARET JANE SMITH'S STORY

William A. Smith also brought his twenty-four-year-old daughter, Margaret Jane, with him to Titusville in the spring of 1859. She did the cooking and kept house for her father and brother. Later she married Charles J. Irish, and moved to Bradford. A reporter for *The Oil City Derrick* interviewed her in 1909 and prepared the following story of her experiences at the Drake Well. The account was published on August 27, 1909.

"When Colonel Drake called to see my father he went to the blacksmith shop first," said Mrs. Irish. "Then my father brought him to the house and introduced him to my mother.

"One thing ought to be understood. We did not live in the town of Tarentum, but at a little place called Salina, nearly a mile below Tarentum. Salina was the place where Lewis Peterson was making the salt at the time. Mr. Peterson was the man who sent Colonel Drake to see my father. Outsiders always considered Salina, which had two and perhaps three stores, as a kind of suburb or part of Tarentum, so the salt wells were called the Tarentum salt wells.

"My father had quite a good sized blacksmith shop for the times, and in connection with his other work he made tools and salt pans for the Peterson wells.

"When I first saw Colonel Drake he had on a black suit and a high black hat. He was naturally a dark-complexioned man. And the black hat and the black clothes made him look all the darker. After he had gone I remember saying to my father, 'That man looks like an Indian. And maybe we'll all get killed.'

"Now, I didn't believe any such nonsense, because we all knew there were no Indians in Western Pennsylvania likely to give any trouble at the time. Still going to Titusville did sound like going out into the howling wilderness. Tarentum was nearer Pittsburg and it was pretty well built up in that part of Allegheny county, even as far back as 50 years ago. But it is the truth that my mother did not want to go and did not want us to go, because she said Titusville seemed too much like 'back woods' and she was afraid something might happen to us.

"Finally father said, 'Well, we'll try it, anyhow. Maybe we will all make our fortunes out there.' Next he said, 'Which one of you girls will go with me?' Finally it was decided that I should go, and that the other boys and girls except Samuel B. should remain at Tarentum with mother. It was agreed that Samuel B. was to go with father to help him in the work on the oil well.

"When I saw the oil well or rather the oil springs I had heard so much about I was awfully disappointed. About all that I could see was a hole in the ground, and not a very big hole at that. There were some timbers scattered about—nothing to brag of. Bates Fink and Palmer Fink and Cord Redfield were there and they showed us how a scum of oil formed on the surface of the water and even dipped some of it up for us to look at. We didn't see Drake at first, but after a while he came up with Jonathan Watson.

"I went to Dan. Poff's boarding house near the Upper Mill, for dinner, and then went back to the Eagle House, at Titusville, and remained there for about a week. Father and Brother Samuel were fixing over the engine house and making a place to live in at this time.

"And really, now, that remodelled engine house wasn't such a bad sort of home after all. Of course the rooms were awfully small as compared with the rooms in most houses nowadays. I had two or three shelves made from pine boards from the Upper Mill, for a cupboard, and I had a bench rigged up to keep the pails of water on. One thing I do remember—I had to carry all the water for cooking and drinking purposes from the well at Daniel Poff's boarding house, a long distance away. And the water from the tail race of the mill, while all right for cleaning the floors and washing dishes, was dangerous to use for cooking or for drinking purposes. Then at night the frogs in the creek would keep me awake, and my—how homesick I got at times!

"I did a lot of sewing for Mrs. Drake and in this way, I got quite well acquainted with the family. There were times when Drake appeared to be in the best of humor and he would laugh and joke, and would even laugh when the laugh was turned against him. I remember telling him about the black suit and the black hat, and how when he first visited Salina the children were afraid of him—of how I had said that he 'looked like an Indian'—he was so black. It happened that at the time quite a number of persons were around. Drake had on a pair of white linen trousers and a white coat and a white hat at the time. So I said to him, 'If you only had on white shoes now you would be all white—would be a white man, sure.' Drake laughed heartily as the rest of them.

"But Mr. and Mrs. Drake were just as good to me as they could be. Just to show you what I mean, I remember Mr. and Mrs. Drake driving down to the place where they were drilling the well, and Mrs. Drake saying, 'Margaret, if you will go home with me I'll give you a quart of cream to bring back with you.' Remember that these were sort of pioneer times and we didn't have a lot of cream to cook with, and I didn't have a lot of dishes lying around to put things in. My dishes were all in use at the time. But I wanted the cream, because it was a luxury in those days. While I was trying to figure it out Bates Fink, who was there and who had on a big leather apron, jokingly held up the leather apron and said, 'I'll go with you and bring it back in my apron.' At that we all laughed. Finally I found another and a better cream pitcher than his big leather apron.

"Oh, yes, I do remember another little thing that is kind of interesting, I guess. Father and Mr. Drake didn't intend to let any of that oil escape if they could help themselves. They didn't put it into barrels at first, because there wasn't any barrels around there at the time. They borrowed mother's tubs and wash boiler to put it in. I remember, because the first sight I got of oil was in those tubs and wash boiler. And I remember we never could do much with the tubs and wash boiler after that.

"Mother and I both thought Colonel Drake would be pretty cross because the derrick burned down and between ourselves we talked over how back in Salina we had thought he was an Indian and how being an Indian he might kill and scalp us all. Of course we really didn't mean anything like that, but we really did think he would be pretty ugly about that derrick burning down just the same. But if Mr. Drake was at all put out he never let us find it out. For the next morning after the fire when he came up I remember him saying just as pleasant as could be, 'Well, Mr. Smith, I see you've had a frost—and a black one, too.' This was in the fall of the year, when people were naturally talking about frosts doing damage to the crops, and that was what Colonel Drake meant by a 'black frost.' "

24. William Kirkpatrick's Story

Among the eye-witnesses of the drilling of the Drake Well was William Kirkpatrick who worked for Brewer, Watson & Company at Upper Mill as head sawyer. Before his death in 1912, Kirkpatrick prepared an account of the drilling of the Drake Well. It was published in J. D. Henry, *History and Romance of the Petroleum Industry,* Bradbury, Agnew & Company, Ltd., London, 1914, pp. 157-160.

In the spring of 1858 I was employed by Messrs. Brewer and Watson, in the lumber business on Oil Creek. Their mill, which was one of the largest in the country, stood on the east bank, a short distance below Titusville, which consisted of a dozen scattered houses, where the few travellers, mostly lumbermen, were hospitably entertained with food and drink. Having spent the greater part of my boyhood days working in saw mills—mighty crude affairs compared with those now in existence—I was given the position of head sawyer. My assistant, called a tail sawyer, was a stout, lusty fellow named James Tarr. Unless otherwise engaged, our evenings were spent at the American House yarning with the boys or getting up sprinting, jumping or wrestling matches, the proprietor invariably joining in the sport. One May evening, while sitting in the office talking to Mr. Watson about a lumber bill, my attention was drawn to a stranger, who was talking with the proprietor. I heard the words—"you don't means to say I cannot get picks or shovels in this town?" Mr. Watson replied, "I am sorry to inform you of the fact, Mr. Drake, but you can buy them over at Meadville." I learned that Col. Drake was an

Eastern man who was going into the oil business on a big scale. The next morning Drake came to the mill, and, after a lengthy conference with Messrs. Brewer and Watson, located the well site near the mill. At that time I heard Drake tell Mr. Watson that "somewhere in the locality there was a large quantity of petroleum and he was there to find it." A few days later men arrived with picks and shovels and work at the well commenced in earnest. Beyond the ordinary interest created by a stranger's appearance into a backwoods village like the Titusville of that day Drake's embarking in the oil business caused no sensation as there were already a number of oil springs scattered at different points along the Creek. Drake did not impress me as having any conspicuous business ability, but he was, to my way of thinking, rather below the average, yet he was evidently endowed with true Yankee grit, and, if this had not been the case, I firmly believe the discovery of petroleum on a commercial basis would probably have been delayed for years. Drake was one of the best story tellers I ever met; he seemed to have an endless supply of good stories. A few weeks after he had been excavating for oil and had met with little success, Mr. Watson came to the mill and handed me a lumber bill to fill up, telling me it was for a derrick and that Drake was going to drill a hole through the rock and verify his belief in the existence of a big body of oil, if it took a year. "I have no faith in the project myself," Mr. Watson added, "but I am going to help him through with his venture." I gave the order to the "wood boss" for the cutting of the logs the proper length, and we soon had the lumber piled up at the site selected by Drake for the derrick, which, when completed, was viewed with wonder and astonishment by the crowds that congregated to see the wonderful tower. One day a farmer from a back township came to the mill and enquired what the derrick was. He was promptly told by a mill hand that a New York man had erected it as a monument to mark the place where the Tower of Babel stood. I remember Drake had considerable trouble in getting machinery installed before he could start on his wild and woolly venture, as many described it. At length, after a number of vexatious delays, with Billy Smith as driller, the small iron rod suspended in the derrick began its downward course into the earth. It was such a long-drawn-out affair that Drake's name became a joke in the neighborhood. I know for a certainty he was at times on the verge of having to stop work on account of lack of funds to provide for himself and family. That you may know to what straits he was driven I will relate an incident that came under my own observation. It was noon, and I had just finished filing the saw, when Mr. Watson and Drake came into the mill, and, after a short conversation, Mr. Watson wrote something on a slip of paper, which he gave to Drake, who immediately walked away. Mr. Watson came to where I was sitting and said he was sorry for Drake and that his company had left him in the lurch, adding that he had given him an order for a sack of flour and was going to see others and try to raise enough money to see him through. Mr. Watson also made the remark "that any man who had the nerve to go ahead under these circumstances ought to succeed." I thought it strange that if his company were furnishing the money they did not come to his relief. The same old story of breakdowns and cave-ins came in at such regular intervals that people ceased to give the matter much attention until weeks had lengthened into months, but, although complete failure seemed to be plainly written on the undertaking, Drake staunchly adhered to his first theory, that the well would get oil. I will now come to August 28th, 1859. In the afternoon James Tarr and myself had just rolled a large log on to the carriage, before cutting it into lumber, when a boy came into the mill crying that they had "struck oil at last, and if you don't believe me go and see for yourself." "What's that you are giving us? Get out of here with your yarns!" I said. "It's as true as blazes, for I was there and saw it with my own eyes," replied the boy, as he hurried into the boiler room to repeat his story to the fireman. I was at Petroleum Centre at the ringing up of the curtain, witnessed the coming in and going out of Pithole, the rise and fall of Shamburg, and the fading away of Red Hot, but, on looking back over these eventful times, the striking of the twenty-five barrel well on Watson Flats by Drake was a tornado to a spring shower in comparison. How the news spread so quickly has always seemed marvellous to me when I consider the primitive means of travel and news circulation in those days. It seemed as though the entire population of the country had heard of the phenomenon at the same time, for in less than twenty-four hours after the strike we had in Titusville such a crowd as had never assembled there before. Mixed up with old and young that came in crowds, in wagons, on horseback and on foot, could be seen the polished city-bred bankers, merchants and lawyers, and never in the days that followed, and after Drake's well had sunk into insignificance compared with others in production, was there such a wild scramble for territory on which to erect a spring pole. I was caught in the vortex of excitement and dropped the saw levers for ever. The morning I decided to be a follower of Col. Drake, Mr. Watson, mounted on a spirited horse, rode up to the mill, and, calling me outside, asked me to look after the business, stating that he was going away for a few days. I learned afterwards that the business that called him away was to lease land further down the creek. The honour of attending to Mr. Watson's business I turned over to James Tarr, and, joining the ranks of lease hunters, I was lucky enough that night to get two lots, numbered 66 and 67.

. . . .

25. W. B. Fink's Story

One of the men who worked and resided at the Upper Mill of Brewer, Watson & Company near the site of the Drake Well was W. B. Fink, or Bates Fink as he was more familiarly known. He was twenty-six years old at the time of the drilling of the famous well, and had an exceptional opportunity to observe Colonel Drake and his methods. A reporter of *The Oil City Derrick* interviewed him in 1909 and prepared the following account. It appeared in the *Derrick* on August 27, 1909.

"People talk about the 'Oil Springs' at the Upper Mill. There was only one spring on the spot, though there were others scattered along the Creek. I have heard it said it was the Seneca Indians who discovered this 'Oil Spring,' but it was a man named McClellan who dug the first real hole in the ground at that place. McClellan suffered a good deal from rheumatism and he got the idea into his head that the crude oil which came to the top of the "Oil Spring" was good for his rheumatism. He used to get the oil by swabbing or mopping it up with blankets and then wringing out the blankets. There was where the men at the Upper Mill first got the idea of mopping the crude oil from the surface of the water to use as lubricant. McClellan told me the Indians used to swab up the oil in the same way. It was a pretty slow way of getting it.

"I don't know whether those oil baths really did McClellan any good, but he seemed to think they did anyhow. Perhaps the living out of doors on the Flats helped him. He finally built a little shanty at the oil spring and slept there on a board bunk. He was living this way even before I went to work at the Upper Mill. And that was long before Colonel Drake commenced his work of drilling the well. As I remember it, McClellan had stopped his oil baths quite a little time before Colonel Drake came to Titusville."

Asked concerning his recollections of Colonel Drake personally Mr. Fink said:

"I saw him the first time he came to the Upper Mill. He was a fine appearing man—very quiet in his ways. He was always well dressed. I remember in the winter time he wore, among other things, a long overcoat that nearly touched the ground. In the summer time, while around at his work, he appeared to like to wear a queer kind of a cap. Whenever he talked it was generally about business. But he never did talk much—even about business. So far as I can now remember, while he talked with me about the work at the well, he never did say what he was drilling for—whether it was for oil or salt. It was sort of talked around that what they were after was salt. Colonel Drake never seemed to be trying to fool anyone by trying to make believe that he was after salt—just went about his business and said nothing. And he was a business man who seemed to have a way of going right to headquarters with things."

Being asked what he remembered about the drilling and the well itself, Mr. Fink replied:

"I remember that the frame of the derrick was made out of pine oar stems, a little over 35 feet in length. The ordinary stuff at the mill was not long enough to use. I remember helping to carry those pine oar stems from the Upper Mill to the derrick, 200 feet away. We laid them on the ground near the oil spring and at different times helped the carpenter fix up the timbers. This work was all done on the ground before the rig-raising."

Among those who were present at the time of the derrick raising besides Colonel Drake and William A. and Samuel B. Smith, Mr. Fink now recalls Harrison Locke, who was at that time helping his father, a millwright at the sawmill; his younger brother, Stephen F. Locke, a 12 year old boy, who was then attending a country school about a half a mile away from the Upper Mill; Bloomfield Gerow, who worked at the Upper and Lower Mill; Stephen Edgett and Nate Goodrich, both employed at the Upper Mill at the time; Reuel D. Fletcher, the Titusville dry goods merchant; Henry Allen, who lived about half-way between Titusville and the Drake well; Daniel Poff, who ran a boarding house near the Upper Mill; Rexford Pierce, one of the owners of the Upper Mill, and his son Edward, and Eldridge Stackpole, one of the head men from the Lower Mill. Mr. Fink says there were others, but that he cannot now recall them.

"I remember," said Mr. Fink in telling his story, "how the men from the Upper Mill brought their pike poles and they were found to be 'just the thing for a derrick raising.' The usual guy ropes were used to steady the different parts of the derrick as they were being raised into position. The timbers were braced much the same then as now and we raised the derrick just about as you would raise a barn nowadays. I guess it took the greater part of an hour for us to do the job. It was fun for the men at the mills; they didn't look on it as real work at the time; thought it more like a half holiday."

Asked what the workmen at the Upper Mill said about the idea of drilling for oil at the time Mr. Fink replied:

"I think most of us imagined Drake had something up his sleeve—that he was drilling for something else besides oil. When he got the Smiths from Tarentum it made it look as though he was really trying to get a salt well like the salt wells at Tarentum. Some of the men thought he would wind up with a salt well and not an oil well. We knew there was oil there? Yes. But that didn't count for much with us because the oil didn't seem to be good for much. As long ago as 1852 when we were digging a pit at the Upper Mill we noticed that the water was all covered with oil, but that didn't mean much to us. What was it good for anyhow? It was much like the natural gas that escaped for so many years. We used to see the natural gas escaping—used to even watch it boil and bubble through the water, but we didn't know that the natural gas was good for anything at the time. And even after Colonel Drake showed us how to get the oil in a new way I know we didn't appreciate oil. For one thing the quantity simply overwhelmed us. It puzzled us all for we couldn't think that there could be any use for that amount. A gallon or two a day we could understand—what to do with 500 gallons a day—15 or 20 barrels—it was beyond us at the time. But though I knew we didn't understand it I do remember that we were all greatly interested in what was going on. Perhaps it was the newness of it—the mystery—that made us all so curious."

Concerning the interest taken in the well by the people of Titusville and other towns Mr. Fink relates the following incident:

"When the oil was first struck I was at work with the other men from the Upper Mill rebuilding a dam. We all hurried over there to see what it was like. I don't believe that we any of us made much of a fuss over it. One thing, we were sort of accustomed to using it on a small scale and this looked like a few gallons more of the same thing that we had been using. But when the news reached Titusville and other towns, it commenced to make quite a little stir, and 'city dudes' commenced to come in from Titusville and other places. Back and forth, back and forth they would go and some of them were dressed like princes. In fixing the dam we were working in the water up to our waists and some of these 'city dudes' poked fun at us. So I said to 'Deacon' Pierce: 'I've found a way to fix those grand gentlemen.' The 'Deacon' asked me how and I told him, 'I'll wet em,' at which he only laughed.

"So I sawed the plank that they walked across to reach the well—sawed it almost in two. In a little while three or four of them, wearing high plug hats, came swinging along—as big as life. And they all got a good wetting. As I helped fish one fellow out he said sort of sorrowful, as he looked at his hat swimming in the muddy water: 'Why I came along here yesterday and that plank held all right.' "

Mr. Fink well remembers the building of the first tanks from six by eight timber obtained from the Upper Mill. He good naturedly helped Mr. Silliman, the carpenter rig up the posts 'after hours' at the mill and he recalls in this connection that the posts were set outside instead of inside—the custom later.

By no means the least interesting of the reminiscences of Bates Fink are those that have to do with that first oil well fire. Perhaps nothing can give one a better idea of what pioneer life in Western Pennsylvania was like at the time. The oil well, the Upper Mill and the little house occupied by the Smiths were on what was called 'The Island.' It wasn't an island naturally, but was made one artificially by the mill race and the creek. Bates Fink and his family lived on the tail race of the mill across from 'The Island' and about 150 feet away from the mill. The family consisted of Mr. and Mrs. Fink, a girl about 4 years of age and two boys about 2 years of age. The well caught fire shortly before 10 o'clock at night. It happened that Bates Fink and his wife were both in bed sick at the time with severe attacks of typhoid fever. As was the custom and still is in the country districts friends would volunteer and take turns at watching nights. It happened that this was Harrison Locke's night for watching. And when the fire broke out at the well Harrison Locke ran across the mill race to the rescue of the Smiths. No one knew at first just what had occurred. And it was some little time before Mr. Locke could return to look after Mr. and Mrs. Fink. That first oil well fire they will never forget. They were both so sick that they could not raise their heads from their pillows. But without raising their heads they could look out of the windows and see the flames only a few rods away. They could hear the members of the Smith family shouting and could see the Smith children running about, but they were too far away to distinguish a single word that was said. They had not the slightest idea of the extent of the fire. For all they could tell not only was the Smith house and the oil well burning but there was the danger of the Upper Mill and the entire island being swept by flames. Knowing little or nothing about the character of an oil and gas fire at the time it was impossible for them to guess what the chances were of the flames coming in their direction. All they could do was to watch through the windows and await developments. It is needless to say that they were greatly relieved when the friendly face of Harrison Locke put in an appearance.

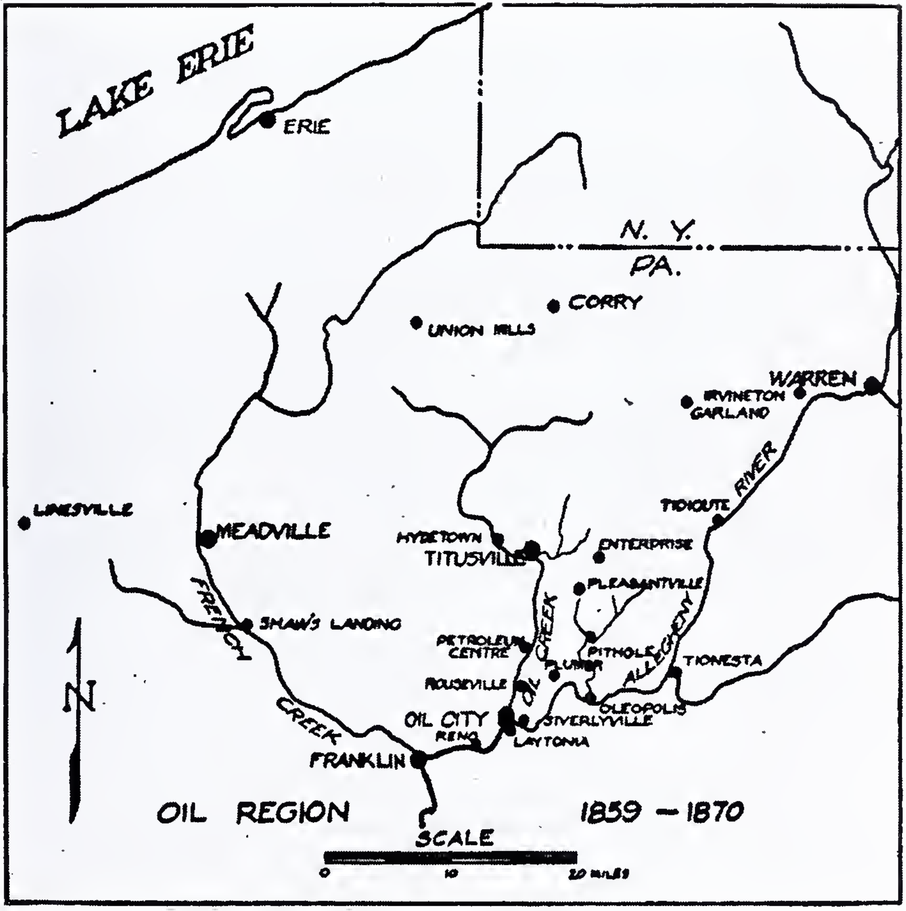
26. Harrison Locke's Story

At the time of the drilling of the Drake Well, Harrison Locke was a young fellow. His father worked at the lumber mills of Brewer, Watson & Company. The Locke's lived near the Upper Mill. A reporter for *The Oil City Derrick* interviewed Harrison in 1909, and prepared the following account which appeared in the *Derrick* on August 27, 1909.

"Father moved into Pennsylvania from Lyman, N. H., at once settling near the Upper Mill," explained Mr. Locke. "His name was Jonathan Locke. We lived, I should say about a third of a mile from the spot where the Drake well was drilled.

"Father was a mill wright and in that way had charge of the mills of Brewer, Watson & Co. Brewer, Watson & Co. had three mills of their own—the Upper, the Lower and what was called the Buxton Mill. From time to time they leased other mills and as they leased the other mills they put my father in charge of the machinery at all of the different mills. I was learning the machinist's trade from my father at the time the Drake well was drilled, in that way working the summers and going to school during the winters.

"I well remember Mr. Drake when he first came to the Upper Mill for the purpose of drilling that well. And during the months that he was at work in that neighborhood I became pretty well acquainted with him. He would often stop me and inquire about things at the Upper Mill and he would sometimes speak about details of the work at the oil well though he was a quiet, reserved man, never boasting or bragging about the great things that he expected to do.



This map of the early oil region is taken from Giddens, *The Birth of the Oil Industry*. Used by permission of the author and the Macmillan Company.

"When 'Uncle Billy' Smith came to Titusville and went to work on the well I spent more time around there than ever. I will say this for 'Uncle Billy'—he was a good blacksmith. And for some reason I was always in his good graces—perhaps because I was young and just learning the machinist's trade. 'Uncle Billy' was a man strong in his likes and dislikes. Some of the young fellows and the boys he would chase away. But he seemed to take quite a fancy to me and appeared to like to have me around the well when he was at work on it.

"Then as now of course they would have breakdowns and mishaps. Brewer, Watson & Co. had a lathe and a drill and when Mr. Smith needed any repairs he would come to my father for help. For instance, if he broke a pin or needed a box he would do his own forging on a rough forge which he built near the well. The machine work he would bring to my father to be turned the proper size, after which he would cut the threads on the pins with a blacksmith's screw plate and cut the thread with hand tap for the reason that there were no engine lathes in that part of the country at that time.

"And for this reason you can make up your mind that any tools turned out by engine lathes were not the tools used in the drilling of the original Drake well. I have helped my father out in this work on those original tools and I can recollect many things which would enable me to identify the tools used in drilling the original Drake well. For instance, some of those pins were about an inch or an inch and one-eighth in diameter and about two and one-half inches long and were rather tapering as the boxes were cut with taper tap. Mr. Smith brought his screw plate and taps with him from Tarentum when he brought the tools.

"The work that we did for Colonel Drake and 'Uncle Billy' Smith in the way of repairs wasn't a 'thank you job.' It was a regular business transaction and my father was paid for all the work though of course I have no means of being able to tell how much he did get. But in one way I suppose our place there might almost be said to have been the first oil well repair shop or supply house for they had to draw on us from time to time in connection with the drilling of the well. They really didn't have any other place to go. And as soon as the excitement over the Drake well commenced my father hired the shop and tools of Brewer, Watson & Company, and started in the manufacture of drilling tools—right there on the spot—within

15 rods of the Drake well. That is how I came to go into the business of making oil well tools, a business I have remained in for 50 years.

"You ask me what I remember about those tools. It is a long time ago and a man ought not to be held responsible for every little detail that occurred 50 years ago when he was a young fellow. But there were some things about those tools that I can never forget.

"Mr. Smith had what he called a center bit. It was quite a little smaller than the tools used in finishing up the well. He also had a kind of flat reamer, almost the full size of the hole. Oil men can scarcely imagine how small the tools used in drilling the first Drake well were. They were so much smaller and lighter than the tools used nowadays that it would be difficult to give any description of them that the present generation could understand. Perhaps this will help though: If necessary, I could have carried the auger stem, the sinker bar, the reamer or the bits on my back without any particular trouble.

"As I remember it the boiler was a stationary boiler of the tubular variety—perhaps 20 H.P. I cannot tell where that boiler was made, but I am positive that the engine was an Erie engine. I was familiar enough with the different kinds of engines even at that time, so that I am sure that I could not be mistaken as to whether an engine was an Erie engine or not. The boiler exploded—went all to pieces—at the time of the first oil well fire in the fall of 1859. The engine was badly damaged in the same fire, but was afterwards overhauled and made to do considerable service.

"There has been some discussion as to whether the first tubing was of copper or iron. Iron was used afterwards, but I am positive that the first tubing was of copper. I was working at the Upper Mill the day that they first discovered oil. Of course we all of us, stopped work and went over to the well to look at the oil. I well remember 'Uncle Billy' Smith lowering the sand pump into the well and pumping out the oil just to show the people what it was like."

Mrs. Irish, the daughter of "Uncle Billy" Smith tells an interesting story of how Mr. Locke became, in a way, the first of the many heroes of the oil region. At the time of the burning of the derrick of the Drake well Mr. Locke was watching at the bedside of Mr. and Mrs. Bates Fink, both of whom were very ill from typhoid fever. When the fire broke out Mr. Locke rushed to the Smith home, only a short distance away, caught up one of "Uncle Billy" Smith's daughters, who was also very ill at the time, and carried her to the Upper Mill. An interesting point in this connection is that as he was making the rescue the boiler, close at hand, "let go," and both Mr. Locke and Miss Smith narrowly escaped with their lives, the debris falling all around them as Mr. Locke ran to the Mill with the sick girl.

27. Reuel D. Fletcher's Story

When Colonel E. L. Drake came to Titusville, Reuel D. Fletcher was a young merchant just starting out in business. The two men soon became intimate friends and later, when anyone inquired about Colonel Drake and his activities in Titusville, the average resident would say, "Go and see Fletcher. He is the man who helped 'finance' Drake, and he knows more about the first oil well than any other man living." In 1897 E. C. Bell interviewed Fletcher about Drake and the Drake Well. Fletcher's account, as follows, was published in Bell's *History of Petroleum: Life of Colonel Edwin L. Drake,* "The Bugle" Print, Titusville, 1900, pp. 120-131.

Bissell and Eveleth were promoters of stock companies. After they had formed the Pennsylvania Rock Oil Co., and sold an amount of stock to New Haven, Connecticut, parties, they were, seemingly, satisfied with their part of the deal. They then became inactive in pressing forward the developments of the property.

But the New England stockholders had, as yet, received nothing for their investment. They, therefore, began investigating how best to realize returns for the money they had paid for stock of the original company. It was then that they devised the project of organizing the Seneca Oil Co., designating that they would pay the old company a royalty of 12½ cents on every gallon of petroleum raised from the ground.

This move brought Bissell & Eveleth, and others of the original Pennsylvania Rock Oil Co., to awaken to the realization of protecting their interests. From this moment active development took the place of indifference and the undertaking was slowly carried forward to completion.

Dr. F. B. Brewer's part in the earlier projection of the oil industry on Oil Creek, was more in the effort to sell the land in which the lumber firm, of which he was a part, was interested, than in the quantity of petroleum produced. Neither was he solicitous as to the process used in procuring the oil. Five thousand dollars for a piece of land that was hardly worth the price of the tax upon it, was, at that time,—in 1854,—an object of far greater importance to him than any other. When he received that amount of money he was satisfied. He was willing that others should make what they could out of the land in any way that best suited their genius and ambition.

Had not James M. Townsend, of New Haven, Conn., pressed forward his claim in trying to realize profit upon his investment in the stock of the Pennsylvania Rock Oil Company, it is doubtful if an oil well would have been drilled on Oil Creek in 1859, or for many years afterwards. Much credit, in the enterprise, therefore, is due to the memory of Mr. Townsend for the part he played in the great work that made it possible for the final success in tapping the vein of natural oil. The far seeing enterprise of this New Englander was more persevering than any other of the company.

After the arrival of Col. Drake in Titusville and he began operations to drill the well, I became much interested in the outcome of the undertaking. I soon learned to know him very well and reposed large confidence in his integrity as a man, possessing the truest kind of courage amid adversity. Time passed on and he worked away at his well. Finally, in the summer of 1859, before the well was completed, the company having deserted him, he found himself financially embarrassed. One day he came to me and told me his circumstances. I was then, as now, engaged in the merchantile business. He said he wanted to effect the loan of some money. He could get what he wanted, he said, at the Dick bank in Meadville, if myself and Peter Wilson, also a merchant in this village, would indorse a note with him. Having faith in him, we subscribed our signatures to the paper and he got $500.

After the completion of the well, and it began producing oil, Col. Drake, on one occasion, remarked to me that he was more in need of money than previous to striking oil. Tubing, with which to pump the well, had to be purchased, and the product marketed. He said, "I can now get lots of endorsers on a note, for every body seems to be my friend." I replied: "Now is your time. Use them." But, according to a record in my diary, of date of Dec. 15, 1859, both myself and Peter Wilson renewed our signatures on the original note for sixty days.

Almost from the first commencement of operations to drill the well I gave Drake credit at my store. I find, by referring to my books, that the account began under date of June 5, 1858. This was but a few weeks after his arrival in Titusville, and, with his family, began a permanent residence here, as the representative of the Seneca Oil Company. On the 1st of March, 1859, he owed me an account amounting to $154.11. In April, of that year, he paid me $100 of the debt, but on Oct. 1st, following, the account had increased to $200, and on the 1st of March, 1860, the full amount then due me footed up to $364, less a set of drilling tools, $47. I furnished the iron for the tools, which increased their cost up to $100.46. William Smith made the tools while he was in the employment of Drake. They were made in December, 1859, [1858] and I used them to drill a well, in which I had an interest, near what is now called Boughton, a place on the creek, about two miles below Titusville. On June 25, 1860, I shipped twelve barrels of oil from this well to Shefflin Bros., then leading dealers in crude petroleum in New York City.

After Drake completed his well, August, 1859, it was necessary that he have a large amount of merchandize, so, during the following October, the balance of his unpaid bill was $516. Of this amount the Seneca Oil Co. only paid $93. They would settle only for articles that were actually used upon the lease in drilling the well. Not long after the well was completed, an agent of the company—a Mr. French—came here from New Haven, Conn., and settled that much of the bill but would not assume a single cent of the cost of Drake's household expenses. They had deserted him in his hour of greatest discouragement in rendering friendly advice or financial aid. They left him wholly upon his own resources to fight the battle of adversity. Yet, the very moment of his triumph, they were ready to sweep down for their share of the proceeds of the well. But Col. Drake persevered in his honest endeavors to pay. In July, 1860, he owed me $372, and one year later the account against him was $400. It was not until 1863 that we had a final settlement and he paid the balance due me which closed out five years of dealings. The first purchase that Col. Drake made over my counters amounted to $1.37.

Upon the occasion of the final settlement of our account Col. Drake made the remark: "Fletcher, you have proven the best friend of them all."

Drake was naturally reserved in his demeanor towards others. Hence, this expression of his appreciation of the faith I had preserved in him, during all the years of his struggle, was, certainly proof that he was sincere in his remark.

After he struck the well he did not care to have people come to see it. In fact he oftentimes did not grant the coveted privilege.

Before the well was completed Col. Drake had the use of my horse. This use of the animal extended over a period of several months' service. During this time he made a number of visits to Tarentum and once to the salt wells in West Virginia. While thus having the use of my horse we rode together very often. On the afternoon of Saturday, Aug. 13, 1859, I rode with him to the well and was in the derrick at the time when Mr. Smith announced that the tools had struck a crevice and they were drawn out to remain idle over Sunday. Smith remarked: "I believe I have struck more oil!" "More oil" was meant in connection with what had been found upon the surface of the ground. After Drake got oil he purchased a horse from Dr. A. G. Egbert, then a practicing physician at Cherrytree Village, Venango county, Pa. As the oil development extended down the creek Egbert became part owner of the celebrated Hyde and Egbert farm at Petroleum Centre, which produced some of the largest wells of the region.

In the end probably Jonathan Watson was instrumental in helping Drake accumulate his fortune of $10,000. Watson organized the Drake Oil Co.; the land of which was located in the eastern end of Titusville, and it was the sale of this land which Drake owned, that gave him the fortune he lost in stock speculation on Wall Street.

I sold the first oil refined from the product of the Drake well. This was on Nov. 30, 1859, and S. M. Bloomfield was the purchaser. Jonathan Watson was the second and Hiram Hill the third. All these men were residents of Titusville. The oil was quoted at $1.25 per gallon and the lamps at $1.25. Bloomfield purchased one lamp and oil, Watson two lamps with oil and Hill two lamps with a quantity of oil.

Townsend & Son kept a bank in New Haven, Conn. It was conducted under the old state banking law, and the bills of issue were printed on yellow paper and were new and crisp when paid to me by Mr. French, the agent of the Seneca Oil Co., in liquidation of the amount they assumed of Drake's debt to me.

I have the first label that was made for branding the barrels used in conveying the oil from the Drake well. It was cut here in Titusville, and bears the inscription, "Seneca Oil Co."

I also, at one time, had the original tools used in drilling the Drake well. I loaned them to be exhibited at some kind of a church fair. I lost track of them and afterwards it was claimed that they were in the extensive and valuable private collection of historical relics and curiosities belonging to Hon. Lewis Emery, Jr., of Bradford, Pa.

Following the completion of the Drake well I became agent for the sale of oil well drive pipe. Drake advised me to add this to my business for he said it would prove profitable. He had gotten the pipe used in his well from the Little & Mash foundry, Erie, Pa. So I took the agency for Titusville, as this city was then the headquarters of the oil business. I made the first sale in May, 1860, and the amount was three joints, four inches in diameter pipe, at 4 cents per pound. Stewart & Co. were the purchasers, the bill amounting to $48. Afterwards the price was reduced to 3¾ cents, then to 3 cents per pound. I closed that branch of my trade in 1862, having sold nearly $9,000 worth of the pipe. Meantime Bryan & McMullen had started a machine shop here in Titusville and began selling what was called "pit pipe," which was cast in Cleveland, O., and considered much superior in durability to that moulded in Erie.

In conclusion, I might say here that the first store of Brewer, Watson & Co., from whom the oil lease was procured upon which the Drake well was drilled, was located on the south side of Oil Creek, just above the old brick house now standing at the lower or eastern edge of the city limits. The distance to the store from the present business centre was fully a mile. It was at this store that the business, in connection with the lumber firm of Brewer, Watson & Co., was carried on.

In 1909 an *Oil City Derrick* representative interviewed Mr. Fletcher and wrote the following story which was published on August 27, 1909.

Mr. Fletcher has just made an examination for the *Derrick* of the so-called Hibbard farm, the site of the original Drake well. In making this examination he found that practically all traces of that first oil well have disappeared. There is a hole in the ground perhaps eight feet across and ten feet in depth—a hole which does not greatly differ in appearance from any old abandoned well on many a farm in this country, even to the usual muddy water upon which float the customary sticks and pieces of board thrown there by the ever-present small boy. On the surface of things, however, apparently not a single material substance remains at the well which even felt the touch of the master hand of Drake. Probably the main point of difference between this and an ordinary water well is found in the fact that projecting above the surface of the water can be seen five or six feet of pipe. This hole on the surface is part of the same hole in the ground which Colonel Drake helped to put there a half a century ago. But the pipe is not the same pipe. It is of far later date and was placed there a few years ago by Mr. David Emery upon the theory that more modern methods might result in the extraction of more oil than Colonel Drake had been able to secure. This theory put into actual practice did not prove a success and the well was a second time abandoned. But the presence of the pipe is accounted for in connection with the sinking of this second oil well by Mr. Emery.

Reuel D. Fletcher during his visit to the location of the old Drake well found that time has made few changes in the neighborhood itself. It is still about as wild as it was when Nature first took a hand in the making, about as wild as it was on that day when Colonel Drake first walked into the Upper Mill and asked Bates Fink if he would be kind enough to show him the way to "the old oil spring." The farm upon which the Drake well is located has had many ups and downs since the days of Colonel Drake and the Pennsylvania Rock Oil Company. Sold for a song about 20 years ago it finally passed into the hands of David Emery, since deceased. And it is the widow of the late David Emery who has so generously donated five acres of this land, including the site of the Drake well, to Canadohta chapter, D.A.R., on which to erect a monument to the oil industry.

The site of the original Drake well is plainly to be seen from the Pennsylvania railroad, and if the Daughters of the American Revolution succeed in carrying out their plans for a monument commemorating the discovery of oil, that monument can be pointed out from the windows of the trains to all passengers traveling between Oil City and Titusville. The location is of course much nearer Titusville than Oil City, being about a mile from the former and 17 miles from the latter place. Even now, as the passenger journeys between the two towns, the Pennsylvania railroad conductors take pleasure in pointing out to all inquirers a lone pine tree on the Titusville flats near the foot of the first bluff and explaining that the Drake well was situated only 40 or 50 feet away from this lone pine tree, undoubtedly a small bush at the time of the drilling of the original well. This lone pine tree is located to the left of the railroad tracks as one travels from Titusville to Oil City and about a five-mile ride from the Titusville railway station.

Mr. Fletcher during the course of his examination found that the Upper Mill of Brewer, Watson & Co. has almost disappeared. A few half-rotted foundation timbers remain partly buried in the earth. It was called the Upper Mill to distinguish it from the Lower Mill, also owned by Brewer, Watson & Co., and situated farther down the creek near where the village of Boughton now stands.

The Upper Mill played no small part in the history of the development of the first oil well. Not only was it the headquarters of the men interested in the proposition in a general way, men like Dr. F. B. Brewer, one of the original stockholders of the Pennsylvania Rock Oil Company, but it also served as a rendezvous or rallying point for the men employed in connection with the drilling of the Drake well. It was from this Upper Mill, only 200 feet away, that the lumber and the timbers employed in building the first derrick were obtained. And it was to this same Upper Mill that the men were accustomed to go to borrow tobacco and exchange jokes and stories when it rained or when they grew unusually lonesome.

For the site of the first oil well is in a lonely place. It cannot be called inaccessible, not even isolated. It is too close to Titusville for that. Some one has said that oil wells are always located in the jungles. And 50 years after the drilling of the Drake well as one stands on the same spot one is apparently as much alone as in the heart of the Hogshooter district of Oklahoma. But this loneliness is more apparent than real. Within a stone's throw can be found all of the comforts and luxuries of civilization, Titusville proudly claiming a greater wealth per capita than any other town in the country. And the oil men the world over will be interested in knowing that oil has lasted for half a century right in the territory where the first well was drilled and that only another stone's throw away can be heard the familiar "Chug! Chug!" of the gas engine and other sounds which to the initiated mean oil production.

Mr. Fletcher is full of reminiscences concerning the drilling of the first oil well. In fact his interest in the general subject of oil antedates the coming of Colonel Drake by several years. It began as long ago as the time when Jonathan G. Eveleth, one of the original stockholders of the Pennsylvania Rock Oil Company, first put in an appearance at Titusville and asked to be driven out to the Upper Mill of Brewer, Watson & Co. in order that he might see the place "where all that rock oil comes from, anyhow."

It is extremely interesting to listen to Mr. Fletcher tell the story of the drilling of the first oil well; of how for many years before Colonel Drake came to Titusville the firm of Brewer, Watson & Co., had been operating a sawmill on the Titusville flats; of how the members of the firm, now all dead, were New England men; of how Dr. F. B. Brewer, son of the senior partner, Ebenezer Brewer, came from Vermont to Titusville to live, back in the early 50s; of how Dr. Brewer had happened to have a college friend, George H. Bissell; of how Mr. Bissell, then a New York lawyer, with offices over the famous publishing house of D. Appleton & Co., had happened to have a partner named J. G. Eveleth; of how as long ago as 1853, while Mr. Fletcher was still a clerk under Brewer, Watson & Co., Mr. Eveleth had put in an appearance at Titusville; of how Fletcher was the one selected to drive Eveleth out to the saw mill; of how on a cold December day lawyer and clerk had found a shovel at the Upper Mill and had dug up a lot of dirt in the vicinity of the old oil spring; of how the soil had seemed to fairly ooze oil, but still no way of getting at it; of how Mr. Eveleth as he tossed the dirt into the tail race at the Upper Mill and watched the scum form on the surface of the water, in spite of the cold not yet frozen over, had bemoaned the fact that in land or water there appeared to be no way of getting at the oil; of how Eveleth and Bissell had finally turned samples of the oil over to Professor Benjamin Silliman, of Yale university; of how after an analysis Professor Silliman had reported favorably, among other things recommending the rock oil as valuable for illuminating purposes; of how Mr. James M. Townsend, a New Haven banker, had become interested; of how the Pennsylvania Rock Oil Company had been formed at the New York offices of Eveleth & Bissell; of how Colonel Drake, about this time a conductor on the New York & New Haven railroad, had become acquainted with Mr. Townsend, the banker, and through him with the proposition of the Pennsylvania Rock Oil Company and the Titusville oil springs; of how Mr. Townsend and others growing tired of a policy of non-action had finally brought about the formation of the Seneca Oil Company of Connecticut, a contract being made with the Pennsylvania Rock Oil Company by which the Seneca Oil Company agreed to pay 12 cents a gallon for all the oil produced; of how Colonel Drake had been made manager and how it was agreed that he should proceed to Titusville and begin operations.

As Mr. Fletcher says, there were a hundred links in that chain and if any one of those links had been broken Progress might have taken another turn at the forks of the road, electricity or some other invention might have been developed as a substitute at that time for the diminishing whale oil, and the discovery of rock oil or petroleum might have been put back for a century.

But this was not all, Mr. Fletcher says. For even after the arrival of Colonel Drake at Titusville there were many additional links in the chain and if any one of those links had been broken the history of the world might have been different.

Said Mr. Fletcher in recalling the various incidents connected with the subject of the Drake well:

"Even now—50 years after that well was finished—when I remember all of the different troubles that Drake went through; remember that never in this part of the country, at least, has there been found a well at so shallow a depth—only 69½ feet—when I stop to think how I have been through all of this oil and gas excitement and have never helped out another oil man as I helped Drake out at the crisis without any security whatever—well it does seem to me now as though the hand of Providence must have been in it all. Don't ask me why I did the things that I did. I don't know why. But we can all see now that the chances were a thousand to one against Drake in the venture. And while, of course, it wouldn't seem so much now, it would have crippled me quite a bit at that particular time, just starting out in business as I was, for myself, if Drake had not been able to meet his note and pay for the things that he got at my store. But I must have sort of felt that big things, bigger things than any of us dreamed were picking us all up and carrying us all along with them.

"Colonel Drake, who was then a man of nearly 40 years of age, went about trying to get oil much the same as any other man with practical ideas in his head would have gone about something which neither he nor anyone else knew very much about," explained Mr. Fletcher. "Of course we knew of the existence of rock oil or petroleum even before Eveleth and Bissell ever saw Titusville. But we didn't know how to get it out of the ground until Col. Drake showed us how to do it. We knew just about as much about that as we now know about the canals on Mars or the man in the moon. Such a thing as a real oil well had never been heard of anywhere. Oil, if collected at all, was collected by the crudest and the most laborious processes which made it cost somewhere in the neighborhood of a dollar a gallon.

"Drake didn't have an oil well to pattern after and a lot of oil well machinery to start in with. He had to create his own first oil well by arranging for the creation of drilling machinery. In trying to do this he made different experiments. He attempted to get at that oil in different ways. He failed in his first experiments over and over again. But he seemed to be learning all of the while from all of his different failures.

"Finally Drake commenced to try to study out what his chances would be in pumping out the rock oil, something as water is pumped out of water wells. It looks easy enough to all of us now, but it is like the old story of Columbus and the egg. The discovery of America appeared simple enough to the wise men of Spain after Columbus came along and showed them how to do it. Of course the pumping of the oil as a common sense idea, but there were no ideas at all upon the subject 50 years ago, either common sense or otherwise.

"Once the idea entered his head, Drake commenced to look around to see just what could be done. It was natural that he should turn his attention to studying the salt wells of the times—that he should try to find out all that he could about the way they were drilled. For while people 50 years ago did not know enough to drill for oil or gas, they did know enough to drill for water, both fresh and salt. So Colonel Drake visited the wells at Tarentum, where water was being pumped for use in the manufacture of salt.

"Drake was from May, 1858 to August, 1859, getting that first well down a distance of 69½ feet—over a year—pretty slow time drillers would say now. But they can have no idea of the things the man had to contend with. Titusville was not what it is to-day—a town of nearly 10,000 inhabitants. It was almost a pioneer place with a population of only 300 or 400—was in fact some miles away from a railroad. In many things, Drake might just as well have gone around blindfolded. Every step was a step in the dark. Then, too, the Pennsylvania Rock Oil Company was a house divided against itself. Drake had plenty of things to bother him in connection with the raising of the money necessary to drill the well. And I doubt whether he would have been willing to have even tried to have borrowed any more money through me. He knew that I couldn't possibly have afforded to have gone into that kind of a thing any deeper. And Drake was not only a careful and conservative man when it came to money matters he was a thoughtful and honest man.

"Just to show the things that he had to contend with I recall that he had disappointment after disappointment in his efforts to even get men to work on the well. Though he was willing to pay good wages for those days I suppose most of the good workmen did not like to have their fellows laugh at them for working on anything so 'crazy' as an oil well. Man after man would promise to go to work for him and would 'fall down on him.' Finally Mr. Peterson, who owned several salt wells at Tarentum, recommended a Tarentum blacksmith and driller of salt wells, named William A. Smith, as a reliable man. Mr. Smith is dead now, but his son, Samuel B. Smith, who was quite a chunk of a boy in those days, and who helped his father and Colonel Drake in the actual work of drilling that first oil well, is a carpenter and is still living right here in Titusville.

"I am sometimes asked if Drake got excited—got the "buck fever" —as most novices do when they stike oil for the first time. He seemed pleased to think that the well, the work that brought him to Titusville, had been finished and finished so successfully, but I cannot recall that he was greatly excited or that he was wildly enthusiastic about it. He wasn't an excitable kind of man. But I do remember that he seemed pleased—in fact, the whole town appeared pleased. In a general way I suppose it is fair to say that a lot of the townspeople thought we were 'sleeping over a fortune,' because of the discovery of the oil, but there was nothing of that wild excitement which later swept up and down Oil Creek. We didn't realize what it really meant at that time, even from the money-making point of view. But it seemed to me that the entire population was glad, chiefly, on Drake's account. For he had worked so long and so hard at a thing which most men had believed was 'only a kind of crazy scheme anyhow'."

Mr. Fletcher was asked if Colonel Drake really appeared to be getting the oil for use as an illuminant or whether, as has often been claimed, he was merely trying to get it for use as a lubricant or for medicinal purposes.

"That is a pretty important question," said Mr. Fletcher. "And I can answer it best in this way. It is true that rock oil had been used for medicinal purposes and for lubrication, right here in Titusville. But these were local and limited. Colonel Drake never appeared to take much stock in the medical idea and he didn't appear to pay so much attention to lubrication, though he naturally sold the oil to those who wanted to buy it without question as to what the purchasers wanted to do with it. But this much we all know to be true—no sooner did Colonel Drake discover the oil than he sent it to Pittsburgh to be refined and used for purposes of illumination."

But if Colonel Drake understood that oil could be used for illumination, how did it happen that he did not follow up his discoveries and make money out of them? Mr. Fletcher was next asked.

"That is a question easier to answer," said Mr. Fletcher. "In the first place, Colonel Drake was in poor health. Then, too, he simply did not appreciate the importance of his discoveries. Who was there who did for that matter? He was not the only man back in those days, your humble servant included, who failed to see the possibilities of the oil business. Then, too, he had a good many things to bother him, enough to make any ordinary man sick and disgruntled. The stockholders of the Pennsylvania Rock Oil Company were quarreling among themselves, even after Drake found the oil for them. And, although he never complained of the treatment he was receiving, I am satisfied that the bickerings among the stockholders of the Pennsylvania Rock Oil Company and their lack of appreciation had a tendency to tire him out.

"I remember some of the things that happened when it seemed to me as though the stockholders ought to be holding meetings and passing resolutions praising Drake instead of finding fault with him. For instance, a man named French, who was a total stranger to me, but who claimed to represent the Seneca Oil Company, which had contract relations with the Pennsylvania Rock Oil Company, called at my store about that time. He inquired whether Colonel Drake had an account with me; when I said that he did, remarked, 'Anything that went into that well the Seneca Oil Company will pay for; anything that Colonel Drake had, personally, you look to him for.'

"Books have been written in attempts to show that Drake was only a hired man; that he was told just what to do and how to do it when he was sent here to Titusville. Those who had the opportunity of watching the man and studying his methods know better than that. And the world can never take away from Drake the honor that is his due for the work that he accomplished. He is entitled to the greatest credit for even sticking to that proposition in the face of obstacles that would have discouraged the ordinary man.

"In Titusville it was all Drake, so far as the drilling of the well was concerned. The townspeople scarcely knew that any other person was interested in the well. Often the stockholders themselves did not appear to take Drake and the enterprise seriously. Take Dr. Brewer for instance. He was a good fellow, well liked by all of the people of Titusville. But even after the discovery of the oil he failed to have any realization of the true proportion of things or of the importance of that oil well to the world; always did seem to regard it as a joke. To show his lack of confidence in the proposition, it is only necessary for me to recall that he gave away a lot of cigars to the young fellows around the town laughingly saying: 'Have some on me! They didn't cost me anything! I traded oil stock for 'em!' I have even smoked some of those cigars myself—cigars that the doctor traded oil stock for.

"After all, there was nothing remarkable in Dr. Brewer's lack of confidence. It infected everything. I remember that while Drake was still drilling the well I happened to mention to him that I was going to New York on business. A trip to New York meant more in those days than at the present time. Drake said: 'I want you to call on an old friend of mine—Babbitt of Babbitt's Schnapps.' Drake was not a drinking man, but as was the custom of the times he would take an occasional drink of Babbitt's Schnapps for the purpose of warding off the chills and fever so common in connection with the opening up of new sections of the country.

"When I reached New York I saw a big sign over the front of a Broadway store. It read Babbitt's Schnapps. I went in to see Colonel Drake's friend. There in a chair sat a jolly fellow weighing 300 pounds or more. When I mentioned that Colonel Drake has asked me to call, Friend Babbitt without further or more formal introduction exclaimed:

" 'Where is he?'

" 'In Titusville,' I replied.

" 'In Titusville! What is the man doing out there?'

" 'Drilling for oil.'

" 'Drilling for oil. What kind of oil?'

" 'Rock oil.'

" 'Rock oil! What in —— kind of oil is that?'

"I explained. Babbitt laughed long and heartily. I thought he never would get through laughing. Finally he said:

" 'You don't mean to tell me that Drake thinks he can get oil out of solid rocks?'

"When I told Mr. Babbitt that this was precisely what Colonel Drake was trying to do he laughed more than ever. Yet Colonel Drake had told me that Babbitt was one of his best friends. And Babbitt himself seemed to have confidence in Drake as a man, but not in the man's mission. The rock oil idea was too much for him to swallow. And even after he heard that Drake had found oil in those solid rocks Babbitt wrote me a humorous letter dwelling upon the idea that oil could be obtained from rocks as though it were the most absurd thing in the world, saying at the end of his letter. 'I suppose that Drake thinks that sometime he will light all New York up with his rock oil.'

"That letter reads funny now that not only New York but the whole world has been lighted up with that rock oil or petroleum."

One detail which Mr. Fletcher mentions is of interest as showing how reticent Colonel Drake was in business matters. It has often been stated that Mr. Drake owned $200 worth of stock in the Pennsylvania Rock Oil Company, having acquired it through Mr. James M. Townsend, the New Haven banker. Mr. Fletcher says that as well as he knew Mr. Drake, the colonel never told him whether he had any stock in the company or not and Mr. Fletcher never asked him. Yet Mr. Fletcher was probably his most intimate friend. Colonel Drake years afterwards told Mr. Fletcher that he had been the best friend he had ever had in his life because he had stood so loyally by him at the time in his life when he most needed friends.

"The colonel's favorite pastimes were fishing in summer and card playing in winter, but he never played cards for money," said Mr. Fletcher. "He liked to play cards with several men who were accustomed to come over from Meadville Saturday nights, and my store was generally regarded as the headquarters for that particular euchre-playing crowd. As for the fishing, we have often gone fishing together not far from where his body lies at rest in Woodlawn cemetery. One day after his oil well had been finished I remember we started out on a fishing expedition to the north of the town. We put our horses out in a barn belonging to a farmer named Gilson. During the intervals when the fish were not biting and when we were not swapping fish stories we fell to discussing oil and oil wells. Finally Gilson spoke up and said: 'I'll bet there is oil under my farm.' We all of us laughed, the farmer included, at the very absurdity of the idea. And yet that particular Gilson farm afterwards turned out to be producing territory.

"But then as now oil played many funny pranks. For instance, William A. Smith, the Tarentum blacksmith who helped Drake in the drilling of the first oil well, owned a good farm in Butler county. Oil has been found in abundance on all sides of his land. Though the Smith land has been drilled the results have been nothing but dry holes. No oil has ever been found on the land of the man who did the most in a mechanical way towards helping Drake out with that first well though it has been found everywhere else in that particular neighborhood. Looks as though the oil must have had a grudge against Smith for helping drill that first well. As for Drake the whole world knows he died a poor man."

28. THE *Titusville Morning Herald's* STORY

Colonel E. L. Drake died early in November, 1880. On November 10th the *Titusville Morning Herald* published the following sketch of the principal points in Drake's life.

We have very little to add of local interest to the sketch we have prepared and give below of the leading events of Col. Drake's life, especially as connected with the first petroleum oil well drilled by him in the suburbs of this city in 1859.

It was the old story of patience under difficulties, perseverence under many discouragements, personal faith in the midst of unbelievers and gainsayers, of clouds and darkness under which the day-star of every great discovery breaks forth and sends its illuminating glory over the face of nature and society. Others may have helped with money or with counsel, others may have "told you so," still the fact remains in living testimony that "Drake first struck oil."

So that as much as Fulton's name is associated with steam navigation and Stephenson's with steam locomotion, so Drake's will go down in the same category of immortals, wherever this petroleum light travels or burns, and awakens scientific or historical inquiry as to by whom, when and where it was brought into the wrold of civilization.

Colonel Drake did not possess a moneymaking propensity or capacity. He got no stock from the company, as he was led to believe he should, after successful development. It is true that he once owned a tract of twenty-five acres in this city; not in the heart, but in the thickly settled portion of it, bounded by Main and Martin, by Drake and the Spring Creek road. It cost him but $4000 and he only paid $500 down, to Jonathan Watson, and Mr. Watson repurchased it and paid Drake $12,000, less the first purchase money. But money he couldn't keep. He was a generous liver; he rode in his carriage; he took no thought of the morrow, for with childlike simplicity, which was part of his character, he said tomorrow shall be as this day, and much more abundant. Col. Drake was a natural aristocrat, and proud of his descent from Drake of revolutionary fame, whose sword he inherited as a family relic. But he had done enough.

Inspired for the purpose by a restless impulse he could not control as by a divine instinct, he pursued his research into Nature's secrets with a singleness of aim and intensity of zeal which often passes for insanity, but which characterizes those rare men who seem born to accomplish something in this life and with little time or poor helps to do it in.

And now that he has passed away, something is due to his memory by the oil men. In life they gave him a pension; in death they should raise a monument to his memory. Where? Here where he lived. When? No better time than now, before all those who were associated with him have closed their own career. We say *here,* because Titusville gave the first well, first well tools, tanks, pipe lines and torpedo to the trade. And now is the time, as our new Oil Exchange, one of the finest structures in the State, is approaching completion.

The means and disposition are not lacking.

Of the hundreds of oil producers who have amassed fortunes in this rich field, not one but would gladly see such a monument rise to such a man, and of the great corporations which now dominate the trade, none but would think this tribute due, and earned, if ever tribute was by public benefactor, in perennial marble or enduring granite.

Let it rise on some conspicuous spot within the city, in the streets where he once walked with unfaltering purpose—in the busy thoroughfare; or in green oasis of sylvan park and write on the shaft the Master's first edict on the primal morning of creation:

"Let there be light!"

A Life Sketch

The following are a few of the principal points in Colonel Drake's eventful life history:

Edwin L. Drake was born at Greenville, Green County, New York, March 29, 1819, and was therefore in his sixty-third year at the time of his death. His parents were farmers in very moderate circumstances. The family consisted of two sons, of whom Edwin was the eldest. The brother, on reaching manhood, emigrated to the far west, where he died about the time Col. Drake was boring the first oil well on Watson Flats. When Edwin was about eight years of age the family moved to Castleton, Vermont, and the two boys received an ordinary common school education.

The childhood of the Drake boys was that of the average farmer's sons, and possesses but a single incident worthy of record. That was a boyish dream, producing little impression at the time, but assuming prophetic importance when recalled by the events of later years. He had fallen asleep one afternoon and dreamed that assisted by his brother he had gathered a huge pile of straw in the wheat field for a bonfire. A light was applied and for a while the flames were watched with boyish delight. But the flames began to spread along the ground. Their frantic efforts to quench them were of no avail. The fire spread on, rising higher and higher, and burning fiercer and fiercer. It followed their terrific footsteps as they fled in dismay to their mother. Reaching the house the conscience stricken Edwin buried his face in her lap and confessed the deed. She led him gently to the door and watching the flames for a moment said gently and without reproach: "My Son, you have set the world on fire." Thirty years later when the tanks of his first well burst and the burning oil spread over the surface of the creek, he recalled his mother's words, with a momentary suspicion, perhaps, that they were to be fulfilled. And in a certain sense, if not literally, they have been fulfilled—he did set the world on fire.

At the age of nineteen Mr. Drake left home to seek his fortune, turning his face toward that Mecca of young men's ambitions, the west. At Buffalo he engaged as a night clerk on the steamer Wisconsin plying between Buffalo and Detroit. At the close of the season he went to his Uncle's near Ann Arbor, Michigan, and worked on his farm for about a year. He was next for two years clerk in a hotel at Tecumseh. Returning east he passed three years in New Haven, Connecticut, as a clerk in a dry goods store. While there he married, and his wife falling into a lingering illness, it became necessary to seek country air, and they removed to her home at Springfield, Mass. There Mr. Drake accepted the position of express agent on the Boston and Albany Railroad at a salary of $50 a month. He held this position until 1849, resigning it to accept the office of conductor on the New York and New Haven Railroad. This position he held for nearly ten years, only resigning it to embark in the enterprise which has made his name famous.

In 1854 his wife died, leaving him one child. His home was broken up, and he boarded until 1857, when he was again married to Laura Dow, of New Haven, who has been to him during his checkered career a loving companion and counsellor in the brighter hours, and a devoted supporter and comforter in the dark paths of adversity.

During the summer of 1857 Mr. Drake was compelled to give up work for a while, on account of ill health. Some time before he had invested $200 in stock of the Petroleum Rock Oil Company, and his interest in that concern led him to devote this period of enforced idleness to a general investigation of the subject and prospects of petroleum.

With the history of the stock companies formed for the development of oil, their various legal complications, and the steps which finally led to Mr. Drake's being sent to Titusville there is neither time nor space to deal in this article, and they are points familiar to everyone at all acquainted with the development of the petroleum industry. It is sufficient to say that in the spring of 1858, having made a brief preliminary visit the proceeding fall, Mr. Drake found himself in Titusville with his family, as the representative of the "Seneca Oil Company" with a salary of $1,000 a year.

The company had provided him with a fund of $1,000 with which to commence operations. He first started up the abandoned surface works of the Pennsylvania Rock Oil Company, and then cast about for an experienced driller to put down an artesian well. But a succession of discouraging delays occurred, and it was not until June 1859, that "Uncle Billy Smith" and his two sons arrived in Titusville ready to commence operations. The work progressed slowly and with many delays, until on Saturday afternoon, August 28, 1859, as Mr. Smith and his sons were about to quit work for the day, the drill dropped into a crevice of about six inches, making the total depth of the well sixty nine and one-half feet. The tools were withdrawn and laid away for "over Sunday." Sunday afternoon, however, Uncle Billy went to the well to reconnoiter, and looking down the tube, saw fluid about ten feet from the service. He plugged one of the tin rainwater spout and let it down with a string. He drew it up *filled with petroleum.* The next day the pump was adjusted and the well commenced producing at the rate of about twenty-five barrels per day. The news flew like lightening, and the village was wild with excitement. The history of the resulting development is too familiar to need repetition.

Colonel Drake did not fully realize the mine of wealth which had been opened, and complacently pumped his well while others seized the golden opportunity and secured the lands along the creek which could then be obtained for a song.

In 1860 Colonel Drake was elected Justice of the peace for Titusville, an office then worth about $3,000 a year, from the multitude of leases to be drawn or acknowledged. He also bought oil for Schieffelin Bros. of New York. In 1863 he sold his property and went to New York where the $15,000 or $20,000 he had accumulated in the oil regions were speedily absorbed in Wall street's maelstrom. His health gave away, and upon his noble wife devolved the provision for the future. She removed the family to Vermont, with the little she had been able to save from the wreck. But his health continued to fail and his physician advised sea air. The use of a cottage was offered them on the Highlands of Never Sink, near Long Branch, New Jersey, and thither they removed. Their troubles deepened; their funds were exhausted and his disease developed into an agonizing neuralgic affection of the spine which constantly threatened paralysis. Mrs. Drake made superhuman exertions to find bread for their four helpless children with her needle, but it was impossible. With the utmost difficulty she raised the 80 cents necessary to take her husband to New York, where he was to make an effort to obtain a situation for his eldest son among his old acquaintances. There he was met by Mr. Z. Martin, of this city, who drew from him his wretched story. Providing him with money for his present necessities Mr. Martin, on his return to the oil region, made known his distress. With characteristic generosity a fund of $4,200 was raised among the prominent oil men, which was wisely committed to the management of Mrs. Drake.

In 1870 the family removed to Bethlehem in this state, where they have since resided. In 1873 the Legislature granted Colonel Drake a pension of $1,500 a year during life or the life of his wife.

PART III

LETTERS AND DOCUMENTS RELATING TO DRAKE AND THE DRAKE WELL

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LETTERS AND DOCUMENTS RELATING TO DRAKE AND THE DRAKE WELL

Many letters and documents are available to supplement the contemporary accounts of the drilling of the Drake Well. Some of the more important, covering the period 1854 to 1862, have been selected for presentation here because of the light they throw upon certain aspects of the enterprise. The Articles of Association of the Pennsylvania Rock Oil Company of New York, the Articles of Association of the Pennsylvania Rock Oil Company of Connecticut, and the Articles of Association of the Seneca Oil Company of Connecticut show the character of these first oil companies. Other documents and letters illustrate the difficulties encountered in organizing these early petroleum companies, the lack of harmony among the stockholders, Drake's activities in Titusville, Drake's financial situation, the results of Drake's achievement, the attempts to market oil at home and abroad, and the efforts to sell out the interests of the Seneca Oil Company.

29. Articles of Association of the Pennsylvania Rock Oil Company of New York

The following certificate of incorporation was filed with the Secretary of State of New York on January 13, 1855. This was the first company to be incorporated for the purpose of producing and selling petroleum.

Certificate
Of Incorporation
of the
Pennsylvania Rock Oil Company

State of New York; City and
County of New York; S S.

Be it known that we, the undersigned do hereby associate ourselves as a body politic and corporate, pursuant to the New York Revised Statutes. 4th Edition. Vol. 1st Chap. 18th Art. second; and also Laws of New York, 1853, Chap. 333, in relation to the formation and management powers and responsibilities of Corporations.

And the following are the *Articles* of our agreement and association:

Article I

The name of the Corporation shall be the *Pennsylvania Rock Oil Company.*

Article II

The object for which said Company is formed are to raise, procure, manufacture and sell *Rock Oil.*

Article III

The Capital Stock of said Company shall be *two hundred and fifty thousand dollars* and shall be divided into two thousand shares of *twenty-five dollars each.*

Article IV

The business of said Company shall commence on the first day January, 1855, and shall continue *fifty years.*

Article V

The business of said Company shall be under the management of *seven* Trustees and the Board of Trustees for the year shall consist of the following persons, viz: *J. G. Eveleth* of New York; *Geo. H. Bissell* of New York; *Franklin Reed* of New York; *Francis B. Brewer* of Titusville, Pennsylvania; *Anson Sheldon* of New Haven Connecticut; *James H. Salisbury* of New York; *Dexter A. Hawkins* of New York.

Article VI

The principal place of business of said Company shall be in *the City County and State of New York.*

In witness whereof we have hereunto set our hand and affirmed our seals this thirtieth day of December, Anno Domini, one thousand eight hundred and fifty four.

Witness as to Edwin B. Bowditch
Anson Sheldon

J. G. Eveleth (Seal)
Geo. H. Bissell (Seal)
Franklin Reed (Seal)
Francis B. Brewer (Seal)
Anson Sheldon (Seal)
James H. Salisbury (Seal)
Dexter A. Hawkins (Seal)

30. Silliman's Report

In the fall of 1854, George H. Bissell and Jonathan G. Eveleth went to New Haven, Connecticut, to interest certain capitalists in investing in the Pennsylvania Rock Oil Company of New York. Prior to making any investment, however, the New Haven men thought they should have a scientific analysis of the oil made in order to determine its economic value. Eveleth and Bissell, therefore, arranged to have Professor Benjamin Silliman, Jr., of Yale College analyze the oil. Although the cost might be heavy, the analysis, if favorable, would stimulate the sale of stock. Professor Silliman completed his analysis on April 16, 1855. Since Eveleth and Bissell had failed to place $100 to his credit in the Bank of New York, Silliman left his report in the hands of a friend in New York City with instructions not to deliver it until satisfactory arrangements had been made for paying his bill, which amounted to $526.08. The promoters finally raised enough money to pay the bill and secure the report. Silliman's analysis proved to be a turning point in the establishment of the petroleum industry, for it dispelled many doubts about its value and caused capitalists to look with greater favor upon the enterprise. The following significant extracts have been taken from Silliman's *Report on the Rock Oil, or Petroleum, from Venango County, Pennsylvania, with Special Reference to Its Use, for Illumination and Other Purposes.* J. H. Benham's Steam Power Press, New Haven, 1855.

The Crude oil, as it is gathered on your lands, has a dark brown color, which, by reflected light, is greenish or bluish. It is thick even in warm weather—about as thick as thin molasses. In very cold weather it is somewhat more stiff, but can always be poured from a bottle even at 15° below zero. Its odor is strong and peculiar, and recalls to those who are familiar with it, the smell of Bitumen and Naptha. Exposed for a long time to the air, it does not thicken or form a skin on its surface, and, in no sense, can it be called a drying oil. The density of the Crude oil is 882, water being 1000. It boils only at a very high temperature, and yet it begins to give off a vapor at a temperature not greatly above that of boiling water. It takes fire with some difficulty, and burns with an abundant smoky flame. It stains paper with the appearance of ordinary fat oils, and feels smooth and greasy between the fingers. It is frequently used in its crude state to lubricate coarse machinery. In chemical characters, it is entirely unlike the fat oils. Most of these characters are common to Petroleum from various places. In one important respect, however, the product of your lands differ from that obtained in other situations, that is, it does not, by continued exposure to the air, become hard and resinous like mineral pitch or bitumen. I have been informed by those who have visited the locality, that on the surface of the earth about the springs which furnish your oil, there is no crust or deposit of this sort such as I have seen in other situations where Petroleum or mineral tar is flowing. This difference will be seen to be of considerable importance, as it is understood and represented that this product exists in great abundance upon your property, that it can be gathered wherever a well is sunk in the soil, over a great number of acres, and that it is unfailing in its yield from year to year. The question naturally arises, of what value is it in the arts, and for what uses can it be employed? To enable you to answer these inquiries has been the object of my research.

. . . .

I have submitted the lamp burning Petroleum to the inspection of the most experience lampists who were accessible to me, and their testimony was, that the lamp burning this fluid gave as much light as any which they had seen, that the oil spent more economically, and the uniformity of the light was greater than in Camphene, burning for 12 hours without a sensible dimunition, and without smoke.

. . . .

From this table it will be seen that the Rock Oil Lamp was somewhat superior in illuminating power to Carcel's Lamp of the same size, burning the most costly of all oils. It was also equal to the "Diamond Light" from a lamp of one half greater power, and consequently is superior to it in the same ratio in lamps of equal power. The Camphene lamp appears to be about one fifth superior to it, but, on the other hand, the Rock Oil surpasses the Camphene by more than one half in economy of consumption, (i. e., it does not consume one half so much fluid by measure,) and it burns more constantly. Compared with the Sylvic Oil and the Sperm, the Rock Oil gave on the ground glass diaphram the whitest disc of illumination, while in turn the Camphene was whiter than the Rock Oil light. By the use of screens of different colored glass, all inequalities of *color* were compensated in the use of the photometer, so that the intensity of light could be more accurately compared. Compared with Gas, the Rock Oil gave more light than any burner used except the costly Argand consuming ten feet of gas per hour. To compare the costs of these several fluids with each other we must know the price of the several articles, and this varies very much in different places. Thus, gas in New Haven costs $4 per 1,000 feet, and in New York

$3.50 per 1,000, in Philadelphia $2.00 per 1,000 and in Boston about the same amount.

Such Sperm Oil as was used costs $2.50 per gallon, the Colza about $2, the Sylvic Oil 50 cents, and the Camphene 68 cents—no price has been fixed upon for the rectified Rock Oil.

I cannot refrain from expressing my satisfaction at the results of these photometric experiments, since they have given the oil of your Company a much higher value as an illuminator than I had dared to hope.

. . . .

Use of Rock Oil as a Lubricator for Machinery

A portion of the rectified oil was sent to Boston to be tested upon a trial apparatus there, but I regret to say that the results have not been communicated to me yet. As this oil does not gum or become acid or rancid by exposure, it possesses in that, as well as in its wonderful resistance to extreme cold, important qualities for a lubricator.

. . . .

In conclusion, gentlemen, it appears to me that there is much ground for encouragement in the belief that your Company have in their possession a raw material from which, by simple and not expensive process they may manufacture very valuable products.

It is worthy of note that my experiments prove that nearly the *whole* of the raw product may be manufactured without waste, and this solely by a well directed process which is in practice, one of the most simple chemical processes.

31. Articles of Association of the Pennsylvania Rock Oil Company of Connecticut

Since the property of a stockholder of a joint stock company organized in New York was liable for the debts of the company, it was difficult for Eveleth and Bissell to sell oil stock. If they would reorganize the company in Connecticut, where no such liability existed, certain New Haven capitalists were sure that all of the stock could be sold. Under the circumstances, Eveleth and Bissell decided to abandon the New York company and form a new one in Connecticut—The Pennsylvania Rock Oil Company of Connecticut. Townsend Collection #306, Drake Museum.

Articles of Association of the Pennsylvania Rock Oil Company of Connecticut.

Be it known that we the subscribers do hereby associate ourselves as a body politic and corporate, pursuant to the provisions of "Title 3d, Chapter 14th" of the statute laws of the state of Connecticut entitled "Of Joint Stock Corporations," and the acts in addition thereto and in alternation thereof, and the following are the articles of our agreement and association.

Article I. The name of the said corporation shall be the "Pennsylvania Rock Oil Company."

Article II. The capital stock of said corporation shall be three hundred thousand dollars, and the said capital stock shall be divided into twelve thousand shares of twenty five dollars each.

Article III. The purposes for which said corporation is established are the following, viz to raise, procure, manufacture and sell rock oil, coal, paints, salt, or any minerals or natural productions which may be found in any spring or mines, or on any lands that may come into the possession of said company, by deed or lease, and generally to perform all acts and transact any business incidental to, or that may be necessary in the prosecution of said business.

Article IV. The statute aforesaid entitled "Of Joint Stock Corporations" is particularly referred to and made part of these articles, and the corporation hereby established and organized under and pursuant to the said statute shall have the powers and proceed according to the regulations described and specified in said statute.

Article V. Each subscriber to these articles agrees to take the number of shares annexed to his name of the capital stock of the said corporation, each share to be twenty five dollars as aforesaid.

Article VI. The said corporation is established and located in the city of New Haven, county of New Haven, and State of Connecticut.

Subscribers Names	No. of Shares.	
Asahel Pierpont,	One thousand shares	1000
W. A. Ives	One thousand shares	1000
James M. Townsend,	Five hundred shares	500
Francis B. Brewer	Twelve hundred shares	1200
J. G. Eveleth,	Twelve hundred shares	1200
Geo. H. Bissell,	Twelve hundred shares	1200
Prof. B. Silliman, Jr.	Two hundred shares	200
Franklin Reed,	One thousand shares	1000
Anson Sheldon,	One thousand shares	1000
Samuel Brackett,	Five hundred shares	500
John Hannah	One hundred & fifty shares	150

Henry L. Pierpont,	Two hundred shares	200
Edwin B. Bowditch,	Five hundred shares	500
Ebenezer Brewer,	One hundred & sixty shares	160
Keyes & Hoagland	Eighty shares	80
Means & Tibbetts.	Eighty shares	80
Dexter A. Hawkins	One hundred & ten shares	110
Eveleth Bissell Read,	One thousand nine hundred & twenty shares	1920
	Shares	12000

By order of the Board of Directors

New Haven, September 18th, 1885.

We hereby certify that the above is a true copy of the Articles of association of the Pennsylvania Rock Oil Company and the names of the stockholders and the number of shares owned by each. The purpose for which said corporation is formed are specified in Article 3d. The capital stock is three hundred thousand dollars, none of which has been paid in.

B. Silliman Jr. President
Asahel Pierpont
Francis B. Brewer, Directors
B. Silliman Jr.

New Haven County ss. New Haven, Nov. 26th, 1885.

Personally appeared B. Silliman Jr., Asahel Pierpont and Francis B. Brewer, signers of above certificate and made oath that the same was true according to the best of their knowledge & belief.

Before me. W. A. Ives, Justice of Peace.

Received, 1st Dec. 1855, and recorded by
J. J. Dimock Clk for
N. D. Sperry, Secretary of State

STATE OF CONNECTICUT, SS.
OFFICE OF SECRETARY OF STATE

I hereby certify that the foregoing is a true copy of record in this office

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed the Seal of said State, at Hartford, this fifteenth day of February, A. D. 1861.

(SEAL)

JOHN BOYD
Secretary of State

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32. J. G. Eveleth to [Asahel Pierpont]

Though there is no indication to whom the letter was addressed, it was probably directed to Asahel Pierpont. It reveals a lack of harmony between the New Haven and New York stockholders. Townsend Collection #281, Drake Museum.

33 Wall St. Oct. 20/56

Sir,

I have written you several times but receive no reply.

We have demanded the issue of stock, which we must have, or the 2$ per share & interest according to articles first signed.

I presume you are well aware that if officers refuse to issue stock, they become liable for the value of that stock. The York & Cumberland Railroad Suit has been this year so decided & many other such cases. I now demand the issue of that stock in accordance with the power of attorney sent to you.

I also demand, as Pres. of the Old Co. 1000$ & interest, the subscription of Brackett.

I am informed that the note to Ives, is *illegal* & that it should not be paid.

We have asked whether you will carry out the arrangement with Clark—but no reply.

Also offered to sell to you our entire interest or to buy yours—no reply.

Parties from whom we are trying to raise money, ask whether the lease from you & Ives, has been put on record, but I could not tell, for when we were over there we called for it, but were shown only a copy. I should like to know that point————

It is no use to try to get along together—either buy or sell.

You know well how I have been bound up for other parties, and your not sending the stock was several hundreds dollars damage to me——that I must have made up to me from you.

I believe common courtesy demands an answer to a business communication—but when a director sends to the Pres. for the issue of stock, it is more than a breach of courtesy not to answer.

Yours respectfully
J. G. Eveleth

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33. Eveleth and Bissell to James M. Townsend

This letter was written by Eveleth. Lyman & Havens cannot carry out the terms of their lease and offer a counter proposal. Eveleth and Bissell also propose a counter plan for developing the oil property; they hope that the New Haven stockholders will accept it or propose another. Townsend Collection #280, Drake Museum.

New York, Nov. 10/57

Dear Sir,

We have read a letter from Dr. Brewer — he says that if the Co. will pay what was due Brewer, Watson & Co. by the Old Co. — 275.00 and what the New Co. owe them for lumber, freight and expenses— 66.59 (we presume a due bill will answer) that they give the proper

341.59 power of attorney at once.

Their bill against the old Co. is good for nothing, for they could not pay their debts having lost 2000$ on the stock Mr. Ives took & 400$ on that of Prof. Silliman — Eveleth, Bissell & Reed loosing the full sum of 2000$.

Havens will not go on with the lease as regards the price per gallon — but he will carry it out in all other respects, but giving the Co. 10 per cent of the oil procured ——— or ———

He will form a Co. here or in Philadelphia, put money enough in to develope the works and give our Co. for the lands 24,000$ in the bonds of the Co. secured by a mortgage on the lands payable in 20 years interest payable yearly at 6 per cent—the principal to become due on a failure to pay the interest. The bonds to be 100$ each.

Or we will unite with the N. H. people in issuing bonds of our Co. to the amount of 10,000$, taking out enough to pay all the debts of the Co. and selling the balance to raise money to develope the springs ——— or ——— we will get up a Co here, issuing bonds to the amount of 25,000$, taking 10,000$ of them to develope the springs, and then letting the stockholders of the present Co. take their per cent of the stock or of the balance of the bonds for their present stock ——— *or we will unite on any good plan.*

We have always shown ourselves willing to cooperate in any plan that may be proposed by others that has promised any chance of developing the oil property now will the N. H. people act in this matter, and if they *will* not accede to any of our plans, let them offer one of their *own.*

We have worked and striven thus far without avail. If the N. H. people do not do something we shall abandon everything to its fate.

Please hold a consultation as soon as possible and then inform us of your views in the premises.

Yours truly
Eveleth & Bissell

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34. EVELETH AND BISSELL TO JAMES M. TOWNSEND

This letter is written by Bissell. Apparently the New Haven stockholders asked Eveleth and Bissell to purchase their stock, which the New York lawyers are unable to do. Eveleth and Bissell critize the lack of initiative among the New Haven stockholders. Townsend Collection #277, Drake Museum.

33 Pine St. N. Y.
Nov. 23d 1857

James M. Townsend Esq.
Dear Sir—

In reply to yours of the 20th we have to say 1st that we are wholly unable to purchase your stock. 2nd—we do not *know* whether Dr. .Brewer would take a due-bill for his claim, like the one given to us, but we *think* he would. The N. H. People had better address him at once on this point. 3rd—We are not particular *which* proposition of ours be accepted by your people, or, *all* may be rejected, but we must say that something better or equally good ought to be proposed by your people.

The matter now *rests* with you people. The N. Y. stockholders complain very much, and we think *justly* that no effort is made in New Haven to start the enterprise.

Yours very Sincerely.
Eveleth & Bissell

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35. EVELETH AND BISSELL TO JAMES M. TOWNSEND

This letter is written by Bissell. Lyman & Havens cannot carry out the terms of their lease unless the amount of the oil royalty is reduced. Eveleth and Bissell believe it the best offer. Townsend Collection #278, Drake Museum.

33 Pine St. New York
December 30th 1857.

James M. Townsend, Esq.
New Haven
Conn.

Dear Sir—

We have lately had another interview with Mr. Havens, & he has given to us his *ultimatum*. He offers, if the power of atty be put on Record, to carry out the provisions of his former lease in every respect but the price. Coal oils have lately greatly depreciated, which, of course, will seriously effect the market price of our oil. The most, then, that he will offer is, a *uniform* rate of 12 cts per gall. and will lease the lands for 15 years.

We think no better offer than the above can be obtained. Now, if you will consult the N. H. stockholders in regard to it, it may be thought advisable to refer the proposition to the stockholders at their annual meeting.

Please write us immediately your views on the subject and also inform us at what time the annual meeting will occur.

Very truly,
Yours,
Eveleth & Bissell

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36. JAMES M. TOWNSEND TO BREWER, WATSON & COMPANY

This letter is in the handwriting of James M. Townsend, but it is not signed; possibly it was a copy of a letter sent or one he proposed to send. The letter indicates that the New Haven stockholders were suspicious of the action when Lymans & Havens refused to execute the terms of their lease. Thereupon, the New Haven stockholders leased the oil property at Titusville to Edwin B. Bowditch and Edwin L. Drake. Upon learning of this action at the annual meeting of the stockholders on January 6, 1858, Eveleth and Bissell were furious, and attempted to break up the meeting. Drake expects to begin operations in the spring. Townsend Collection #301, Drake Museum.

New Haven 8 Jany 1858

Messrs Brewer Watson & Co
Gents

We received the power of Attorney for the Lease you have to Mr. Ives & myself, by the hand of Mr. Drake, and have sent to Franklin for record, the delay in getting the title perfected has perhaps been unfortunate and perhaps not — The lease made to Lyman & Havens might have been a good one, and all right, still, we all of us here had our suspicions in the matter, not of Mr Havens, for, from what we learned of the man we could not believe that he would be a party to any intriegue or to advance the interest of one part of the Stockholders, to the injuory of the others. But the proposition of E. & B. was, that if the New H people would purchase of them an amount of their Stock equal to ¼ of the stock they the N. H. people then held, then E & B would get parties to take a Lease of the Lands, &c &c. the N H. people did purchase stock of them and arranged with them satisfactorily, and the Lease was made to L & H but it has failed to be carried into execution. Now I do not say there was design in the matter but such are the facts and we have a right to look at them.

Mr Havens has refused repeatedly to work the Lands or Springs under that Lease as to the price to be paid for the Oil, he has offered to go on and work the springs giving the co ten per cent of the oil procured and that was the best he would do — E & B wrote us the same also proposing getting up a Co in N Y or Phila and issuing Bonds — or issuing bonds of our Co &c. all of which we considered preposterous except the first named i. e. Havens to give one tenth of the oil — bonds could not be sold for anything worth naming at present nor for a long time to come it would involve the Co. in a large amount of indebtedness on which the interest would have to be paid, and at last the principl

E & B wrote us that either of the above propositions would be satisfactory to them and urging upon us to accept one or the other — or do something ourselves equally good or Better, and saying that the matter now *rests* with the N. H. people — we had for a long time been making efforts to start the enterprise — had talk with Mr Bowditch and also Drake and others we finally arranged with B & D to take a Lease of the property and work it if the title could be perfected, and if after examining the property and the place Mr D should think favorable of going out there to conduct the Business, he returned with a favorable impression, and said he would take the Lease and go there and work the Springs on the terms proposed, viz give the Co one eighth of all the oil procured, with the privilege of buying the said 1/8 at 45 cents pr gal at the works on the Land he or they to decide as to buying before the first payment was made — other parts of the lease is simular to, and copied from the one given to Lyman & Havens the price of the oil in the contract with L & H was always called 60 cts on the Lands after it was raised that was the base of all the calculations at that time — oils have depreciated at least 25 pr ct consequently, we were compeled to rate the oil lower than formerly after considerable contension between 50 and 40 we divided, calling it 45 cts which was 25 pr ct less than the former estimate there was a clause in the lease to L & H — providing that if they could not Sell more than 1000 Gal pr day for the year, the Co should have the privilege of Buying the excess over 1000 Gal at 50 cts pr gal at the works — in this Lease is the same clause, but puts the price at 33 cts making in that a greater reduction than in the former, and that in favor of the Co; these are the principal items in the lease.

I have thus given you an outline of the history of proceedings here — Our annual meeting of Stockholders was held on the 6th of Jany inst — and a Stormy time we had from Gotham; our friends E & B on learning that we had leased the property Broke out in the most immoderate rage without knowing a word of the Lease, continuing their storm and abuse for a long time not giving any one opportunity to explain or justify the course we had taken and on attempting to read the lease were broke off By the storm before reading ¼ of it an attempt was made to break up or adjourn the meeting but without success when their rage so increased that they withdrew from the meeting and no more was seen of them we then proceeded to the election of directors which resulted in the election of A P —— H L P —— W.A.I ——J.M.T. —— Geo H Bissell —— if you should think it important to have one of the directors in Titusville and will name one, some one of the directors here will resign, and we will appoint one from your place, or appoint an additional one —

Mr D is making arrangements to commence operations as early in the Spring as the season will permit — in the mean time we wish you to remain entirely nutral taking sides with no one untill you shall have an oportunity to hear more definitely the whole matter — you will probably hear from other side some horible report hear it and lay it aside and reserve your judgement for future opportunity,

37. James M. Townsend to George H. Bissell

This is a copy of a letter from Townsend to Bissell. Townsend contends that, in leasing the oil property to Bowditch and Drake, it was done in good faith and for the best interest of the company. He hopes that Bowditch and Drake can be prevailed upon to give a larger oil royalty, even though the lease has been signed. Towsend Collection #299, Drake Museum.

New Haven Jany 14th 1858

G H Bissell Esq
of Mess Eveleth & Bissell
Attys at Law
New York

Dear Sir

Your favor of the 11th came to hand yesterday the 13th enclosed in which I find your communication addressed to Mr H L Pierpont soon after the receipt of the same I saw Mr Ashael Pierpont to whom I showed the documents requesting him to ask Mr H. L. Pierpont to call and receive the communication addressed to him as I wish to deliver the same to him myself. Whatever I have ever done has been done in good faith believing at the time it was done, that we were doing the best that could be done for the interest of the Penn Rock Oil Company. From the letters received from Mess Eveleth & Bissell I suppose that we must do something or the whole would be lost as they wrote if the New Haven people did not do something they should "resign it to its fate" therefore I was ready to do the best we could, for from Mess E. & B. letters I found the best that Mr. Havens would do was to give "10 pr. ct of the oil procured" I thought if we can make a Lease of the Lands to perfectly responsible Parties here at a greater pr ct (12½) (i. e. 25 pr ct more than Mr Havens offered) that we were doing a splendid thing for the Co. and accordingly coincided in the views of the others, had I supposed we could do better. I assure you I would never have accepted any but the best offer but it was distinctly written to us the best Mr Havens will do is the 10 per cent &ccc therefore we did what we did. Upon the receipt of your letter Jan 1st 1858 in which you informed me the ultimatum of Mr Havens I communicated the same to Messrs Pierponts, they regretted they did not know of it before, but the lease has been executed & was on its way to Penn. & out of our hands. I asked one of the Lessees to give it up, he refused to do so, now what could we do we did that which we supposed was right & if we erred in judgment we are sorry (I am) Mess Pierponts & myself have talked the matter up & we are in hopes to prevail upon Mess Bowditch & Drake to give more or which will amount to more per gallon to the Co I think we can bring them to such terms as will satisfy the Co I *assure* you *I shall try*. I have ever tried to do the fair and honorable thing & just as I agreed and I think both yourself & Mr Eveleth will bear me witness that in all previous transactions at least I have done the fair thing.

I have seen Mr H L Pierpont and have delivered to him the communication which I found enclosed in mine. I should be happy to hear from you any time & remain

Very Respy Yours
Jas M. Townsend

38. Organization of the Seneca Oil Company

A complete record of the proceedings of the stockholders and Directors of the Seneca Oil Company extending from the first meeting on March 19, 1858, until the last on March 7, 1864, is to be found in the Minute Book, Townsend Collection #236, Drake Museum. The following portion relates to the Articles of Association, the by-laws, the election of officers, the employment of E. L. Drake, and the appropriation of $1,000 for Drake's use at Titusville.

ARTICLES OF ASSOCIATION OF THE SENECA OIL COMPANY

Be it known that we the Subscribers do hereby associate ourselves as a body politic and corporate pursuant to the provisions of "Title 3d Chapter 14th" of the Statute Laws of the State of Connecticut entitled of "Joint Stock Corporations" and the Acts in Addition thereto and in Alteration thereof and the following are the Articles of our Agreement and Association

Article I The Name of the Corporation shall be the Seneca Oil Company

Article II The Capital Stock of said Company Shall be Three Hundred Thousand Dollars And Shall be divided into Twelve Thousand Shares of Twenty five Dollars each

Article III The purposes for which Said Corporation is established are the following viz: to raise procure manufacture and Sell, Oils of all kinds Paints Salt Coal or any Mineral productions which May be found in any Springs or Mines on any lands that may come into possession of Said Company by Deed or Lease or any Material found thereon, and Generaly to perform all Acts, and transact any business incidental to or that may be necessary to or convenient in the prosecution of said business

Article IV The Statute of Aforesaid entitled of Joint Stock Corporations is hereby particularly referred to and made part of these Articles and the Corporation hereby established and organized under and pursuant to the said Statute shall have the powers and proceed according to the regulations described and specified in said Statute

Article V Each Subscriber to these Articles agree to take the number of Shares annexed to his Name of the Capital Stock of said Company each Share to be Twenty five Dollars as aforesaid

Article VI The said Corporation is established and located in the City of New Haven and State of Connecticut

Subscribers Names	Number of Shares
W A Ives	2680
E L Drake	8926
J F Marchal	394

New Haven
March 23d 1858

Wave of Notice

We the subscribers having associated ourselves as "A Joint Stock Corporation" under and in accordance with the Statute laws of this State by the Name of "Seneca Oil Company" do hereby with a view to a more speedy organization of Said Company and for the purpose of dispensing with the fifteen days notice otherwise required in said Statute Unite and agree in calling the first meeting of the stockholders in the City of New Haven the 19th day of March AD 1858 at 8 oclock P. M. and we hereby wave our right as stockholders in Said company to Said fifteen days notice provided in Said Statute

W A Ives
E L Drake
J F. Marchall

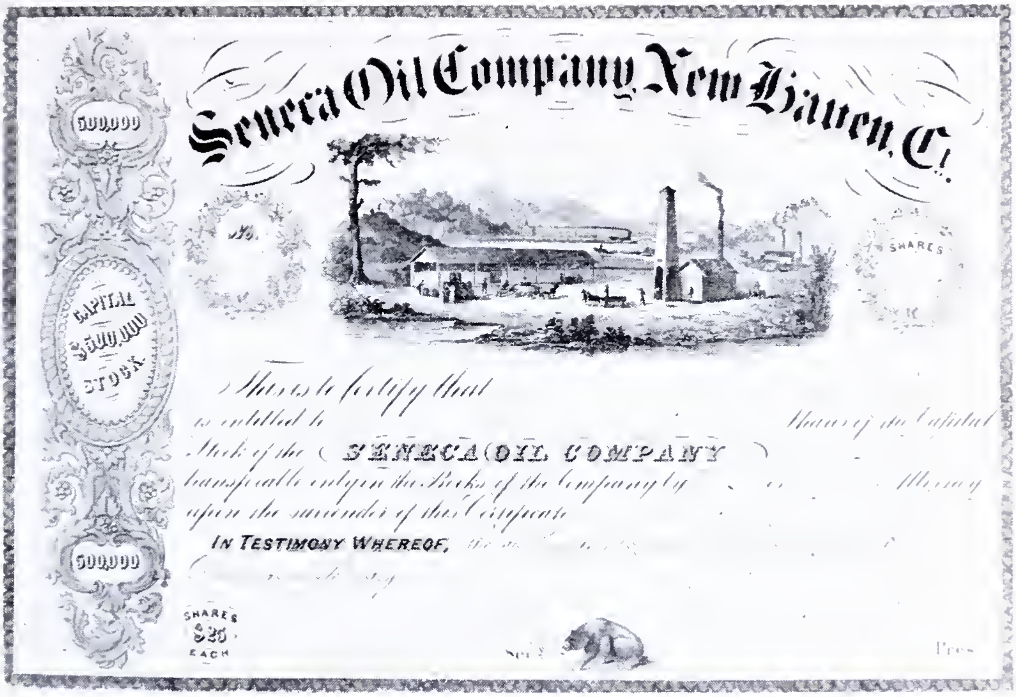
March 19, 1858

The first Meeting of the stockholders of the Seneca Oil Company was this day holden at the House of Asahael Pierpont of this City.

E. L. Drake was appointed Chairman and W A Ives Clerk. The following persons were chosen Directors: viz E. L. Drake W A Ives & J F Marchall

Adjourned to 23 March

W A Ives Clerk



Seneca Oil Company New Haven, Ct.

500,000

Capital $500,000 Stock

500,000

No.

Shares

This is to Certify that
is entitled to Shares of the Capital
Stock of the (SENECA OIL COMPANY)
transferable only on the Books of the Company by Attorney
upon the surrender of this Certificate

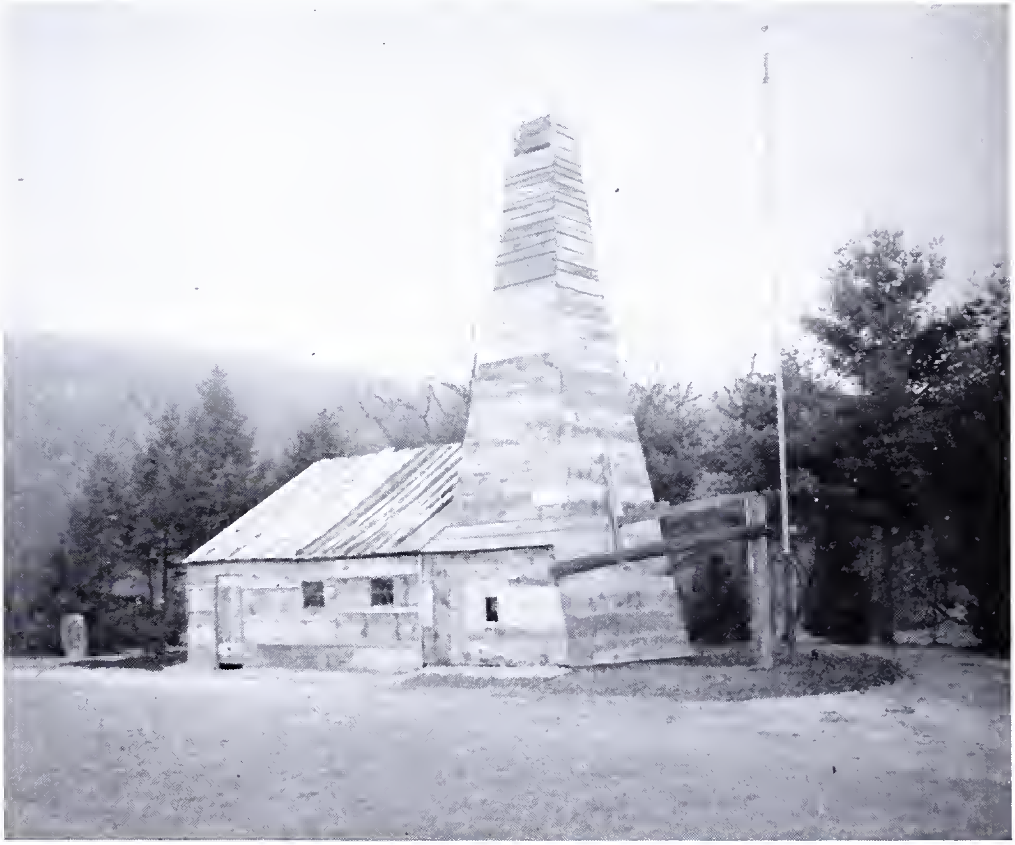
IN TESTIMONY WHEREOF,

Shares $25 Each

Sec.

Pres.

SENECA OIL COMPANY STOCK CERTIFICATE
Drake Museum Collection.



REPLICA OF THE DRAKE WELL, 1945
Drake Well Memorial Park, Titusville, Pa.

Stockholders Meeting March 23, 1858

The following By-Laws were passed after which the meeting adjourned without day

W A Ives, Clerk

BY LAWS

Article I The annual meeting shall be holden on the third Wednesday in July in Each Year. Special meetings of the Stockholders may be called by the President, or by any two of the Directors or by the Secretary on the written application of three of the Stockholders. And all notices of meetings of Stockholders shall be given by the Sec by letter deposited in the Post office directed to Each stockholder or left at his Office or by actual notice at least five days previous to the time of the proposed meeting.

Article II The Board of Directors may appoint One or more agents for specific purposes whose Office and authority shall cease upon the accomplishment or failure of the object for which said appointment was made and the Board may at any time discharge such agent or remove any Officer by them appointed whenever they shall be of opinion that the interests of the company would thereby be promoted.

Article III The Treasurer shall receive and disburse all monies of the Company. He may sign Notes if necessary in the ordinary transaction of business. And if requested shall give bond for the faithful discharge of his duty and the safety of all monies by him received.

Article IV In all meetings of the stockholders votes by Proxy shall be received and Each Share of Stock Shall be entitled to one vote. Questions relating to adjournment number of Directors &c shall be decided by stockholders present viva voce

Article V The Board of Directors may adopt such regulations for their own action as they may think best

They may also fill any vacancy occuring in their number by resignation or otherwise or add to their number provided the number does not exceed seven

Article VI These By Laws may be altered or amended or added to by the Directors at any regular or Special Meeting of the Board Provided that notice of the prosed [proposed] alteration or addition Shall be given at the previous Meeting.

Directors Meeting March 23, 1858

At a Meeting of the Board of Directors of the Seneca Oil Company holden this day E. L. Drake was appointed President and W A Ives Secretary and Treasurer

Adjourned to March 27, 1858

W A Ives Sec

Directors Meeting March 27, 1858

At an adjourned Meeting of the Board of Directors holden this day it was Voted That the capital stock of said Company be called in. It was also *Voted* that in accordance with a previous agreement between the stockholders and in furtherence thereof the Treasurer be authorized to purchase from the individual Stockholders a certain lease owned by them in common of certain Oil Coal and timber Land in the State of Pennsylvania. Provided Said Lease can be purchased at a price not exceeding the amount of the capital stock of this company — And that upon the surrender transfer and delivery of Said lease by said Stockholders it shall be full for their instalments now due upon the stock by them subscribed, and upon said transfer the Secretary is hereby authorised to issue certificates of stock to said Stockholders at their request, and the Said Stock Shall in no way be liable to assessment by way of further instalments or otherwise but shall be full Stock and the President and Secretary of this company are hereby authorised and requested to make the necessary certificates to be lodged with the Sec of State and the Town Clerk that the capital Stock of this co has been paid in.

Voted That the Treasurer be authorised to sign any paper in the name of this company that may be necessary in the purchase of said Lease from said owners thereof—

Adjourned to Thursday April first

W A Ives Sec

At an adjourned meeting of the Stockholders holden March 23^{d} 1858 it was Voted to increase the number of Directors of this Company to Seven and the following Named persons was chosen viz Asahael Pierpont, Edwin B. Bowditch, Jas M. Townsend & Henry L Pierpont.
Adjourned without day

W A Ives Sec

At a Meeting of the Board of Directors of the Seneca Oil Company holden April 1st 1858—Voted That Edwin L Drake be appointed general agent of this Company to raise & dispose of Oil with a Salery of one Thousand Dollars per Annum for one year from the date hereof. Voted That the Treas be requested to procure without delay the sum of one thousand Dollars to be placed at the disposal of Said Drake to be used in conducting the operations of this Company.
Adjourned to meet at Tontine 5th inst.

At Said adjournment meeting there being no business requiring action on Motion adjourned to first Thursday in May

W A Ives Sec.

39. DRAKE TRANSFERS STOCK TO NEW HAVEN CAPITALISTS

Shortly after his appointment as General Agent of the Seneca Oil Company, Drake transferred a large portion of his stock to other New Haven men; Ives and Marchal do likewise. The following record appears in the Minute Book, Townsend Collection #236, Drake Museum.

Office Seneca Oil Company

For value received I hereby sell transfer and convey to Asahel Pierpont—Thirty three hundred and thirty four shares of the Capital Stock of the Seneca Oil Company—Also Twenty-seven hundred and Eighty-three Shares of said Stock to James M. Townsend—Also Sixteen hundred and thirty two Shares of said Stock to E. B. Bowditch —Also Five hundred and twenty one Shares of said Stock to Henry L. Pierpont now standing in my name upon the Books of said Company.

New Haven
April 5 1858

E L Drake

40. E. L. DRAKE TO DR. F. B. BREWER

The following letter, appearing in *The Oil City Derrick,* August 27, 1909, was written by Drake to Dr. F. B. Brewer of Titusville. It tells of Drake's plans to depart for Titusville.

Fair Haven, April 2, 1858

Dear Doctor:

I think I shall get ready to leave this place about the 13th and I shall visit my father in Castleton, Vt., on my way; this will take up the time until about the first of May, when I think I shall make my grand entree into Titusville, if you think the mud will be navigable by that time.

Now I wish to make a few inquiries: First, whether navigation will be open between your place and Erie. Second, how shall I direct my goods, as I shall send some things direct from here while I stop to visit, and thirdly, whether you think the oil will continue to flow since the admission of Kansas under the Lecompton constitution.

If you will answer this letter as soon as convenient, as I would like to hear from you before I leave here. I shall feel greatly obliged to you, and if you can give me any information about the best way of getting my family in there I shall esteem it a favor.

Respectfully yours, &c.,
E. L. Drake

41. E. L. DRAKE TO [JAMES M. TOWNSEND]

The following letter, appearing in J. T. Henry, *The Early and Later History of Petroleum With Authentic Facts in Regard to Its Development in Western Pennsylvania,* James B. Rodgers Company, Philadelphia, 1873, p. 83, was written by E. L. Drake. It was probably directed to James M. Townsend of New Haven, the leading spirit of the Seneca Oil Company.

July 2d, 1858

Here I am digging along yet in search of oil and other valuables. The month of May was a hard one, and the first eleven days of June, but since then we have had dry weather, so that I have got the start of the water, and am now gathering about ten gallons of oil per day—at the same time sinking a well for the purpose of taking what oil there is on the island.

I have found some difficulty in getting a borer. All were engaged on jobs that will last until fall. Yesterday Dr. Brewer wrote me that he could get one for me at Allegany, who will bore and tube for three dollars per foot, which is the best offer I have had. I wrote the Doctor to send him along at once. Yesterday I set some men to opening a new spring, so that things begin to look greasy.

42. E. L. DRAKE TO W. A. IVES

Drake begins to dig a well, abandons the idea, decides to drill, buys an engine, and makes other preparations. Drake needs $1,000 by September 10th. Money is scarce. Bissell Papers, Drake Museum.

Titusville, Aug. 16th 1858

Dear Sir,

I rec'd on Saturday Aug. 14th at Erie a Pkg. said to contain $472.67

from the Treas. of the Seneca Oil Co. & give my receipt to the Express Co. for it. I shipped two barrels of oil to Mr. Pierpont at New Haven as he said he had made a market for it. In sinking our well last week we struck a large vein of oil but the same thrust of the spade opened a vein of water that drove the men out of the well and I shall not try to dig by hand any more as I am satisfied that boring is the cheapest. I should have had my borer here but I wrote him on the first I was not ready as I did not know that you could raise the money. But money we must have if we make anything. I have abandoned the idea of boring & pumping by water as I could not have the exclusive use of the power, but must be subject to the sawyer the turner & the blacksmith; so after consulting the best business men—that is salt & oil men—at Tarentum I have contracted for an engine to be ready for boring by the first of Sept. The engine will cost five hundred dollars in Erie which is about one hundred dollars less than the same or one like it would cost at the East.

When I get that I shall be independent of the lumber co. I have had my pump stopped ten days this month and at the rate they repair it will take all the month of September to repair the flumes and wheels and then I am liable to be stopped at any time which will not answer. I have got out the timber for my pump house & am having it framed today. We shall get that up this week and then I want to get out timber for a building 60 ft. long and 30 feet wide for oil vats & salt pans which I intend to put up in Sept. and to do this will require some money. Now I think you had better make a loan of $1000 and place it in bank there where I can get it as I need it & I assure you there is no risk whatever for I have got as far with five hundred dollars as any other company have with five thousand and further than some have with ten thousand dollars. I shall send in a statement of my stewardship the first of Sept. and in the mean time if the Seneca Oil Co. should feel as if they were too poor to furnish $1000 more by the 10th of Sept. please let me know at once. Money is very scarce here. The lumbermen could not sell their lumber for cash this summer and the people all depend upon the lumber trade, so money is as tight here as it was in New York last fall. The old lumber company begin to think they did not retain the best of the property when they sold out the oil springs. Old Mr. Brewer is here now and says he is sorry they sold that piece of land or gave that lease; but let them whine there is more money in that little island than there is in all the

1200 acres of the lumber co's land. The health of myself & family is good although it is quite sickly about here at present.

Write immediately & oblige.

Yours &c

E. L. Drake

W. A. Ives Esqr
New Haven Conn.

43. DRAKE'S REPORT TO THE SENECA OIL COMPANY ENDING SEPTEMBER 1, 1858

Townsend Collection #384, Drake Museum.

Seneca Oil Company in a/c with E. L. Drake

	Dr				Cr	
March 27	To Cash pd. for Books Printing & Recording Lease &c	7 95	April	20	By Cash	500 00
May	To 3 years School Taxes	5 98	May	22	" ½ Gall Oil	50
"	for work on Ditches this is for cleaning & repairing Ditches	6 00	June	14	" 1 Gall Oil	1 00
June	" " " " "	21 00	Aug.	14	" Cash	500 00
"	Digging Well	37 50				
"	State & County Taxes (3 years)	4 80				
"	Trip to Erie for Pump	6 63				
"	Tools and Nails for repairs	12 58				
"	Blacksmithing	1 50				
July	Highway Tax (3 years)	5 00				
"	Trip to Pittsburgh	9 83				
"	Pump & Transportation	32 88				
"	Work on Well	39 00				
"	" " Ditches & holes	26 50				
Aug.	" " " " "	23 00				
"	" " Well	6 00				
"	Trip to Erie for Money	4 75				
"	Express Chg on same	1 25				
"	Hauling Timber for Pump frame	1 50				
"	Blacksmithing	4 83				
"	Tinker for Rep of Pump	1 24				
"	Freight on 2 Bbls Oil to Erie	3 50				
	Cash on hand 447.75	447 75				1001 50
		710 97				710 97
	Chg the Subscriber	290 53				290 53
		1001 50				1001 50

To Sept 1st 1858

44. JAMES M. TOWNSEND TO E. L. DRAKE

This letter is not signed but it is in the handwriting of James M. Townsend. Townsend encourages Drake in his work, and makes some suggestions. Townsend Collection #302, Drake Museum.

New Haven 11 Oct 1858

Mr E L Drake

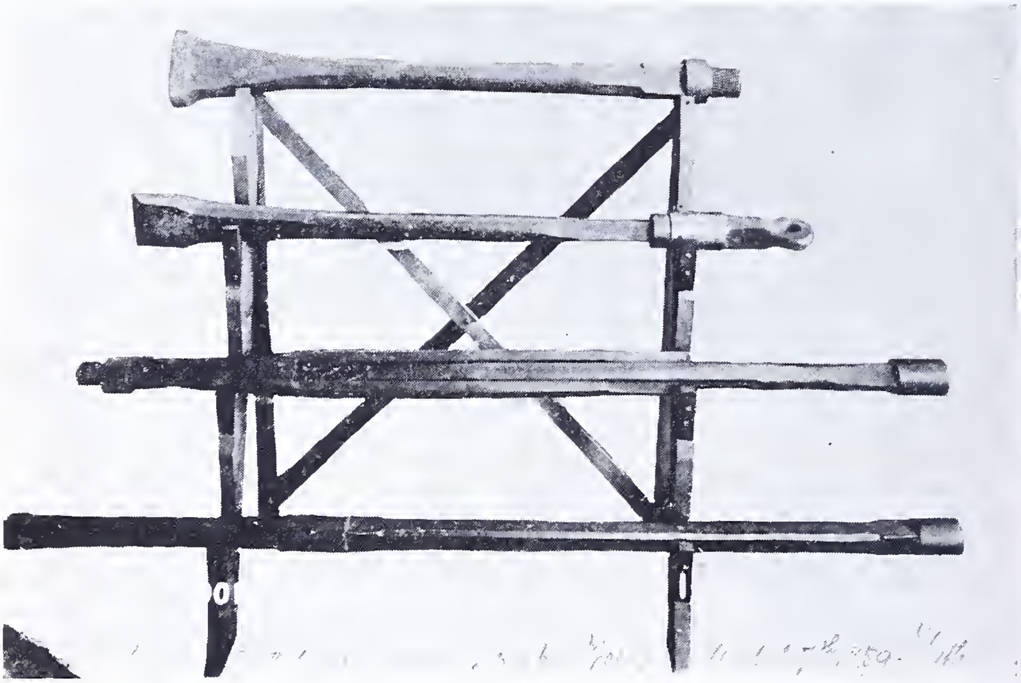
Dear Sir. Yours of the 4th and Post marked the 5 was rec'd on friday evening the 8th—pretty quick trip—I suppose you rec'd mine dated the 2nd on thursday morn the 7th—I am glad to hear that you are geting almost within seeing distance of the puff of your steam Engine, never mind if it is a little foggy and you cant see exactly where you are, or when you shall get steam up be sure you are right then go a head, persevere, Dive right into the fog and directly you will see all things clear as day light with a good bright sun shine and the big Augur going down and the oil comeing up, keep the swinging tow on hand, to be sure; the increase of the well at Tarentum from 10 to 400 Gal pr day is rather singular I should think but perhaps it may be accounted for on the suposition that the vein after having a decided outlet had enlarged and turning the current and concentrating it to this discharge be that as it may, if that is the nature of the creature to increase instead of diminishing it is directly contrary to the suspitions entertained by almost everyone, for all have expressed a fear that the supply would be exhausted in a time, but I have never had so contracted a view of natures Labratory, the supply cannot be exausted in ten Generations, if it can in a hundred you speak of making some preparations for Boiling salt, have you found any decide Salt Brine, you have said nothing about that except once you mentioned you had found some Brackish water which indicates some salt in that region, you know we must get very strong Brine to make it profitable to manf. it, I should think best not to do anything with the salt at present, without it should come right in your way & decidedly Strong and it could be put in operation with *very* little expens —so with the coal I should advise not to spend much valuable time looking for it, at least digging for it, for should you find it, it would probably be very expensive to get through the outer and worthless part of the coal and get into where it is valuable, would it not be better to use wood for a while, even if it did cost a little more than coal would if you had it, now I am not going to get out of patience with you for not geting along faster or for geting along to fast, I merely give you these as my views, away off here on the atlantic coast—suggestions for your consideration and digestion, then act as you think best—what kind of an Engine have you, how many horse power or what is the Diam—of the cylinder and what Length of stroke —what kind of Boiler "perhapes it would be well to prospect for coal if you have some spare time when it will not interfere with the main object, by so doing you can post yourself up on the matter and be ready to act whenever you are ready, you see I am for driving at some one definite thing as much as possible untill it is brought to perfection, or at least till it is made to pay, then go in for improvements and extension as can be afforded"—upright, or cylindor or flue that will require Bricking up—the paper I wrote you about to see if it was recorded was I Believe one of the papers you took with you from here and which you wrote to Townsend about to know which should be recorded it is the one conveying or assigning the Lease given to Bowditch & Drake by the Penn Rock oil Co, to Seneca oil Co when I came in possion of the Books of the Co I found no record of it and no paper, and on inquiring for it

45. DRAKE'S REPORT TO THE SENECA OIL COMPANY FOR THE QUARTER ENDING FEBRUARY 28, 1859

Townsend Collection #376, Drake Museum.

Report of Agent of Seneca Oil Co for quarter ending Feb. 28th 1859

Sep	1st	Stationary	1.00
"	14	Bill of Blacksmithing	3.20
"		Labor on Ditches & Well	46.00
"		Team Work	2.50
Oct	3d	Trip to Tarentum & Freeport	17.75
"		2 Bbls at 10/	2.50
"	29	Trip to Erie	5.25
"		Express chg on Cash	1.55
"		Liddell Hershey & Co on Engine	100.00
"		Labor on Ditches, well, Staves & Wood	48.00
"		Team Work	17.50
Nov	13th	1 Keg	.63
"		Carpenter on Engine House	8.00
"	30th	Liddell Hershey & Co on Engine	200.00
"		Team Work	17.50
"		Cutting Wood	21.00
Dec		Team Work	3.50
"		Making Road to Wood & c	13.20
"		Penn R Oil State & Co Tax	1.90
"		3 Bush Lime	2.40



DRILLING TOOLS USED ON DRAKE WELL
Mather Collection, Drake Museum.

Dec.	30th	Trip to Erie	5.25
"		Express chg on Cash	1.25
Jan		Brewers Bill for Lumber	36.00
"		Team Work	3.00
"		Penn R Oil Co Poor Tax	.16
"		Stationary	1.00
"		Recording Articles of agreement	1.40
"		Tinkers Bill	1.25
"		Error in last Report (Trip to pittsburg 1983)	10.00
"		Cash on	240.00
			812.69

46. COST OF THE DRILLING TOOLS MADE FOR DRAKE

In a memorandum book kept by "Uncle Billy" Smith, who made the drilling tools for E. L. Drake and used them to drill the well, the following entry was found. It is taken from J. D. Henry, *History and Romance of the Petroleum Industry,* Bradbury, Agnew & Company, Ltd., London, 1914, p. 148.

May 14th, 1859

Mr. Drake

To making tools, the full set	$46.00
2 spear boxes	2.50
4 spear pins	4.00
16 sucker joints, $1.50	24.00
	76.50

47. COLONEL E. L. DRAKE IN WARREN, PENNSYLVANIA

The following anecdote about Colonel E. L. Drake going to Warren, Pennsylvania, in August, 1859, is taken from Arch Bristow, *Old Times Tales of Warren County,* Tribune Publishing Company, Meadville, 1932, pp. 9-16. It is reprinted by permission of the author.

The afternoon of August 14, 1859, a man driving a bay horse hitched to a buggy, came into Warren from the west, came jogging down the long, dusty street past the Carver House, by rows of tethered rafts lying along the north bank of the river, on down to Andrew Hertzel's blacksmith shop on the south side of Pennsylvania Avenue, some hundred yards west of Market Street. The horse looked tired, the buggy was heavily covered with white dust, evidently the rig had come a long way. The man in the buggy wore a black felt hat, black trousers with neat leather boots inside them. He was rather frail looking, with intense, dark eyes and a black bushy beard. His coat was off, folded over the seat, his brown suspenders showing. The man was E. L. Drake, an obscure Justice of the Peace in the little saw-mill town of Titusville, thirty-eight miles away. He had with him in the back of his buggy two pieces of steel wrapped in a piece of bagging, the tools to be used in drilling the Drake Well. He wanted them drawn out by Andrew Hertzel; had heard Hertzel was one of the best blacksmiths in the country. E. L. Drake, Justice of the Peace, a very poor man, recently refused credit for a small amount of groceries in his home town, was about to do something which would be heralded around the world and write his name everlastingly in the tremendous history of industrial development.

Drake alighted from his high-wheeled buggy, stamped the dust of the highway from his clothes, led the bay horse over into a shady spot, took a rope halter from the back of the rig and, removing the bridle, tied the nag. He then lifted a small bag of oats from his buggy, borrowed a pail at the blacksmith shop and gave the bay horse his dinner. It cost more to have a horse fed at a livery barn than it did to buy the oats and feed him yourself.

Drake had left Titusville the evening before, driven the bay as far as Pittsfield, put up for the night in the tavern run by Jack Foster in the little town at the adjoining of the two Brokenstraws and come on to Warren in the morning, after a business call at Irvine.

The two bitts had been made in the rough by a blacksmith near Titusville, Drake had brought them all the way to Warren himself to the famous forge of Andrew Hertzel. He wanted them just exactly right.

Drake came back to the blacksmith shop immediately after dinner to watch the drawing-out of his two bitts. They were four inches by one and one-fourth, and four inches by seven-eighths. Andrew Hertzel held the tools and John Gilfillen struck. And while the oil well tools whose chugging was to be heard 'round the world were being shaped and sized in Warren there was much good natured chaff among the men in Hertzel's shop.

"What you drilling for, anyhow, Drake?"

"O, going to drill a salt well, maybe. Folks haven't got enough salt up around Titusville."

"Salt, eh! Now you wouldn't be thinking of drilling a well for oil, would you?"

"Oil, oil, who said anything about drilling for oil. Say boys, I'm just drilling for anything I can strike; just drilling a hole in the ground. You sure that big bitt is not over one-and-a-quarter?"

Drake lit a Pittsburgh-made cigar, a cheap smoke popular among the men of Western Pennsylvania at the time, a forerunner and first cousin of the famous "Pittsburgh Stogie" which was to come later on. Drake lit his smoke with a long splinter of wood stuck in the glowing forge. He sat down on a couple of ox yokes which were in the shop to be ironed, puffed and watched the blacksmiths pound.

About four o'clock the two bitts were finished, two pieces of bluish steel, covered with hammer marks. Dipped in the blacksmith's tub they made a sharp hiss and set up a puff of steam. When they were cooled John Gilfillen put them in the front of Drake's buggy at the owner's direction. Those precious tools were to be kept in sight of the driver all the time, no taking chances on losing those tools, or having them stolen.

E. L. Drake, with nation-wide fame awaiting him only two weeks ahead drove out of Warren with his bay horse and the dusty buggy and the two bluish bitts in the bottom of it, started the slow, jogging journey back to Titusville. That day he made it only as far as Youngsville stopping overnight at John Siggins' Fairmount House. Thus the skilled hands of a Warren man whose name is venerated in the community in which he lived and died, shaped the tools used in the world's first oil well; had to do with the beginning of one of the world's greatest industries.

48. REPORT OF E. L. DRAKE, AGENT OF THE SENECA OIL COMPANY, FOR THE QUARTER ENDING AUGUST, 31, 1859

This is an exceedingly important financial statement made by Drake, for it shows his expenses for the months just prior to the completion of his well and his cash balance on hand September 1, 1859—just four days after the completion of the Drake Well. It definitely refutes the belief long held in the oil region that the Seneca Oil Company failed to provide Drake with adequate financial support. Townsend Collection #231, Drake Museum.

March		00	00
April	Labour	41	20
"	Stationary	1	00
"	Expenses to N H N & Pittsburg	66	05

“	L H C & Co on Engine	100	00
“	Iron & Steele for Tools	30	81
“	Rope	18	48
“	frt on Rope from Pitts	1	66
May	Labour	6	00
	W. A. Smith (Borer)	23	50
	.Team to Tarentum for Borer & Tools	15	00
	Team Work at Works	1	25
June	Do Do	13	75
	Labour	14	13
	L H C & Co to Machinist	4	00
	W A Smith	9	13
	Coal	4	00
	Windows for Borers House	1	80
	pe of Steele & frt from Erie	1	46
	Trips to Erie (self)	5	25
July	pd W. S. [A.] Smith	45	00
	Team Work	1	00
	L H & Co Board for Eng' men puting out Eng.	2	50
	Trip to Meadville for Iron & Iron	6	95
	“ “ Erie for Pipe & e	6	50
	Telegraphing		86
		421	28
	carried over		
	Brot over	421	28
Aug	J. C. Kerr Bill for Saw Nails &c &c	13	10
	Stationary	1	00
	8 Bbls 10/ac	10	00
	40 ft Rope & frt on same	3	00
	W A Smith	9	10
	Team Work	16	00
	Labour	15	50
	Frt on Oil	2	00
	Chg Self	356	02
		847	00

Cr.

By Cash on hand Apr 1st	240	00
Recd from Co.	500	00
Recd from	107	00
	847	00

EE
E L Drake Agt

You will perceive that in this and the former reports I only report Cash paid out, not the amt of work done or for good bought (for instance J C Kerrs (Merchant) Bill was Bot last summer when I first Commenced but Bill has not presented before and I did not call for it as I had none too much money. the same with Labour some was done in the winter and I pay when they call for it (if I have the money)

Yours
E L Drake

49. First Newspaper Account of the Drake Well

On September 13, 1859, the *New York Tribune* published one of the earliest, if not the earliest, accounts of the Drake Well. It presented the following communication from Titusville about the Drake Well, and it was signed by "Medicus." It was generally believed in the oil region that Dr. F. B. Brewer wrote the article.

Discovery of a Subterranean Fountain of Oil Titusville, September 8th, 1859. Perhaps you will recollect that, in 1854, there was organised in the city of New York a company under the name of the Pennsylvania Rock Oil Company, which for some good reason passed into the hands of some New Haven capitalists, and was by them removed to New Haven. In 1858 the directors leased the grounds and springs to E. L. Drake, well known on the New Haven railroad. He came out here in May, last year, commenced to bore for salt, or to find the source of the oil, which is so common along the banks of Oil Creek. Last week, at a depth of 71 feet, he struck a fissure in the rock through which he was boring, when, to his surprise and the joy of everyone, he found he had tapped a vein of water and oil, yielding 400 gallons of oil every 24 hours. The pumps now in use throw only five gallons per minute of water and oil into a large vat, when the oil rises to the top and the water runs out from the bottom. In a few days they will have a pump of three times the capacity of the one now in use, and then from 1,000 to 1,200 gallons of oil will be the daily yield. The springs along the stream, I understand, have been mostly taken up or secured by Brewer and Watson, the parties who formerly owned the one now in operation. The excitement attendant on the discovery of this vast source of oil was fully equal to what I ever saw in California when a large lump of gold was accidentally turned out.

Medicus

50. Reaction of the Directors of the Seneca Oil Company to Drake's Success

After September 2, 1858, until October 6, 1859, the Directors of the Seneca Oil Company would meet regularly each month and adjourn promptly either because of a lack of business or quorum. Upon hearing of Drake's success, the Director took the following action at the October 6th meeting. Minute Book, Townsend Collection #236, Drake Museum.

Oct 6th Meeting of the Directors of the Seneca Oil Co. at Room No. 9 Adelphi Building present A. Pierpont—W. A. Ives—J. M. Townsend & J. F. Marchal. In absence of the President, E. B. Bowditch was appointed Chairman on motion it was Voted that the Sec. be authorized to order from E. L. Drake One Hundred Barrels of Oil Immediately—No other Business, requiring action, on motion it was Voted to Adjourn until Monday Evening Oct. 10

A. Pierpont Sec

51. James M. Townsend to Captain Charles Hervey Townshend

James M. Townsend is very skeptical about the future of the petroleum business. If it succeeds, he plans to provide his brothers with jobs. This letter is taken from *Captain Charles Hervey Townshend,* The Marine Historical Association, Inc., Mystic, Connecticut, II, No. 1, July 27, 1940, p. 53.

New Haven, Conn., Dec. 16th, 1859

Dear brother Charles,

In haste but will drop you a few lines. Why don't you write? I thank you for your letter. Mother and all well, and everything so far as known all O.K. Last accounts from oil lands the oil had increased so that they were getting a gallon a minute. We have contracts with two parties who take one thousand gallons each a week, and everything looks very prosperous, but I don't calculate any upon it, it may all fizzle but so far it works well. I hope to get the agency and general agent in New York for brother William to manage. I am also managing to hire him to the other concern. If I do both sides will be nicely fixed I think. (Keep dark.) Then if it continues to work well, there will be some opening for George to manage I think, so that he can get out of the ice trade. But Charles this is all talk, for it may "fizzle." Now remember this, I don't count anything upon it and all I get I shall consider clear gain, so that if it all fizzles don't laugh at me, for I am determined not to count or depend anything upon it. . . .

Your affectionate brother,

James..

52. George H. Townsend to Captain Charles Hervey Townshend

The Drake Well continues to produce. George H. Townsend expects to enlarge his ice office and go into the petroleum business. This letter is taken from *Captain Charles Hervey Townshend,* The Marine Historical Association, Inc., Mystic, Connecticut, II, No. 1, July 27, 1940, p. 53.

Ludovic, December 20th, 1859

My dear brother Charles,

. . . .

The news from the oil spring holds out good, no appearance of giving out. We have hired the whole of the store where our ice office is and we are going to enlarge our ice office and make room for the oil company with us, and make it appear more respectable.

. . . .

Your affectionate brother,

George,

53. Production of the Drake Well

The following article, taken from the *Crawford Journal,* Meadville, Pennsylvania, December 20, 1859, is one of the early newspaper accounts of the Drake Well.

The oil works of Col. Drake, at Titusville, give evidence of an almost inexhaustable supply of oil, and its quality appears to improve equally with the quantity. Col. D. is now pumping up the greasy liquid at the rate of nearly a barrel an hour for twenty-four hours in the day, and sometimes that amount is far exceeded. He shipped fifty-three barrels of oil to Pittsburg the other day, and there are two hundred more at the Union Mills Station awaiting the convenience of the Railroad for shipment. The net profits of this one spring are estimated at over *twenty thousand dollars per month!*

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54. MRS. WILLIAM K. TOWNSEND TO CAPTAIN CHARLES HERVEY TOWNSHEND

Mrs. William K. Townsend, the mother of James M. Townsend, is skeptical and, at the same time, hopeful about the future of the petroleum business. This letter is taken from *Captain Charles Hervey Townshend,* The Marine Historical Association, Inc., Mystic, Connecticut, II, No. 1, July 27, 1940, p. 54.

Prospect Hill, East Haven
January 3rd, 1860

My beloved Son,

. . . .

James is very busy—did not come home last night (Rock Oil), and Rock Oil meeting will probably keep him over tonight. This with his Bank business I am afraid will be too much for him if he does not look out. I do hope he will not be disappointed in this for it will prove quite opportune for him and advantageous for many concerned, but we must not set our hearts upon anything of an earthly nature, then we shall not be disappointed. But this is sure if James is favored we shall all be made partakers if need be.

. . . .

Your devoted Mother

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55. SENECA OIL COMPANY INCREASES CAPITAL STOCK

As a result of Drake's success a special meeting of the stockholders of the Seneca Oil Company decided to increase the capital stock of the company. The following account of the meeting is taken from the Minute Book, Townsend Collection #236, Drake Museum.

At a Meeting of the Stockholders of the Seneca Oil Company Specially warned for considering the question of increasing the Capital Stock of the company and held in the city of New Haven on the 7 day of January 1860—the following vote was unanimously passed—

Whereas it appears by the annual Statement of the affairs of this Company as of record that the value of the assets of the corporation exceede the present amount of its Capital Stock and liabilities by the sum of two hundred and two thousand, one hundred and fifty Dollars:—and whereas it is deemed advisable that such excess of value be represented by a proportionate increase of the capital Stock of the company

Therefore
Voted that the capital stock of this company be, and the same is hereby increased from the sum of three hundred thousand dollars to the sum of five hundred thousand dollars

Voted that the additional stock of two hundred thousand dollars be divided into eight thousand shares of twenty five Dollars each, and that the same be distributed among the present stockholders of the Company in the proportion of two shares of said additional stock, to every three shares of said old stock now owned by them respectively.

Voted that the President and Secretary be, and they are hereby authorized to issue certificates of said increased stock to the Stockholders in the proportion as directed in the above vote—

Voted to adjourn.

A. Pierpont Secty.

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56. A. GELEE TO CAPTAIN CHARLES HERVEY TOWNSHEND

In 1860 the officers of the Seneca Oil Company sent a sample of petroleum to Havre, France, with Captain Charles Hervey Townshend to have it analyzed by A. Gelee, a French chemist. The following report of Gelee is taken from *Captain Charles Hervey Townshend,* The Marine Historical Association, Inc., Mystic, Connecticut, II, No. 1, July 27, 1940, Appendix II.

A. GELEE CHEMIST
Havre

Captain Townsend
Havre
Dear Sir:

I have analyzed the sample of oil which you have brought to me as being American produce.

According to the examination of said oil, which is very much like the produce or residue of the distillation of coal, and which is a rough oil paraphine, I believe it to be very proper to the lubricating of machinery. The manufacturers of sperm candles could equally employ it in their fabrication. By distillation it might produce an excellent gas light. In the manufacture of chemical produce, it might also be employed in the fabrication of pierigne acid (produce employed for yellow tincture) also to the fabrication of Phenrigne acid (produce employed for the disinfection of animal matter and also to prevent putrefaction).

I do not doubt it might be good to make aniline for the fabrication of violet colour best to get the finest shade on tissue.

It might also obtain other applications in the industry, but it would have to be delivered to commerce at a price excessively low to meet the opposition of the gas produce, but as I mention above, I believe it could find a good market for the lubricating machinery.

Yours,

A. Gelee

Havre
10 Jan. 1861.

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57. Asahel Pierpont to E. L. Drake

Pierpont asks Drake to send petroleum to New York for exportation to London. A. C. Ferris, oil refiner of New York, proposes a plan for uniting the production and distilling interests in order to maintain prices. William Townsend is to spend most of his time in New York introducing petroleum. Townsend Collection #298, Drake Museum.

New Haven Monday eve Jan 30/60

I want you to send 5 Barrels of the oil to New York Directed to "J. A. Smith 43 Front Street"

This is the man that is engaged with Wm. I. Townsend in introducing and selling the oil as a Lubricator. Townsend wishes you to select the very best Barrels (*your new ones*) paint and dry the heads thoroughly and nicely put on the Plate with the *Trade Mark* in the most skilful manner, hoops &c thoroughly secured, and well fitted for a voyage to Europe, Wm. Townsend wants them thus prepared and sent forward *soon as you can,* he is going to send them to London, (England)—Your telegraph from Meadville was read, and a draft forwarded today to Union to your address and order. Mr. Marchal has recd a letter from Ferris, N. Y. saying he had made you a proposition through McKeown of Pittsburgh who it seems is concerned with him and does their distilling for them he says McKeown is not inclined to accept it the outline of the proposition was something on this wise—they would enlarge their work at Pittsburgh—take our oil at a price to be agreed upon—give us an interest in their works (distilling) also take in Brewer well which is yielding about 20 bbls per day and then controll the market for "Carbon oil" and sell it under their "trade mark"—thus uniting all our interests to avoid competition —Unless something of this kind is done, he predicts, that in less than 12 Months the oil will be sold for barely enough to pay for pumping and contingent expenses, say less than 25 cts per Gal delivered in N. Y. Now aren't you scared—

Wm Townsend is going to N. Y. today and going to spend most of his time there in the oil Business—I told him if he could make a rough hewn trade with him on this wise he might do so—"namely"—we would sell to them (if we could agree on a price) all the oil we had to spare for distilling obligating ourselves not to distill or sell to others for that purpose—they on their part obligating themselves to distill and prepare for illumination—all they sold, that gives us the controll of the Lubricating and them the Burning—

Yours

A. Pierpont

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58. Amount of Oil Produced by the Drake Well

Townsend Collection #382, Drake Museum.

Report of the agent of Seneca Oil Co to the secretary of the Penn. Rock Oil Co. of quantity of oil Raised and measured. for quarter ending Jan 31st 1860.

No. of Gallons Twenty five thousand three hundred and seventy seven (25,377)

E. E.

Signed E L Drake Agt

Oath made to the above report before E H Chase of Crawford Co. Penn—

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59. E. L. Drake to R. D. Leonard

Drake finds an agent to handle petroleum in Chicago. He departs for Cincinnati, Ohio. Leonard is Drake's assistant in Titusville. Townsend Collection #260, Drake Museum.

Chicago, Feb 12th 1860

Mr. Leonard

I have appointed an agent here for the sale of Seneca Oil and wish you would ship 10 Bbls to him

Mark them to R A Gillmore Chicago. I am rather disappointed at not getting anything from you or my wife this morning but suppose there was nothing to write. I leave for Cincinnati this evening at 7 Oclock

Yours &c

E L Drake

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60. L. Eastman to E. L. Drake

Eastman of Chicago has tried the gallon of petroleum left by Drake; he personally likes it but machinists object to its odor and are afraid it will spoil their machinery. Eastman may undertake to sell petroleum. He asks to have a barrel of oil sent to him. Townsend Collection #276, Drake Museum.

Chicago Feb 27 1860

E. L. Drake, Esq.

Dear Sir—

I have been making considerable inquiry in regard to the coal oil. I have not yet seen Mr. Gilmore, and will try to in a day or two.

I have tried the gallon of oil you gave me an order for. I am well pleased with it, and prefer it myself to any I have used. There is however a great prejudice against it, among meshuns. This must be overcome. They object on account of the odor. Another says dont use it—you will spoil your mashinery. I tell them the proof of the pudding is in the eating. My impression is that after indusements to get men to use it, the oil can be generally introduced. I think it would be better however first to run off the most volatile part for burning, would leave the machine oil better. I find this is the practice in England. There is a natural oil like yours obtained in Burmah, and large imported into England, and manufactured.

I will give this subject a through investigation, and if money can be made on it, should like to engage in its sale. If you think advisable, I wish you would send me a barrel of the natural oil for mashinery. I will sell enough from it to pay you for it,—and the rest use in experiments, and in trying to get mashinists to use it. There are their planing mills where men will use it on my request as an experiment on trial.

Is not your price more than would be advisable. I see that distilled coal for burning is offered for sale in New York at 50 cents a gallon. They are making coal oil in this State, and I am told sell the crude oil for 25 cts a gallon. If this is so it will be hard to find any margin for yours at 60 cts. But of this I shall soon know. I have engaged an experienced man to inquire into the expense of distilling the price of crude oil, what can be sold for &c.—so I shall know at what price it will pay.

Yours
L. Eastman
Box 2232

61. R. D. Leonard to Asahel Pierpont

Leonard writes an interesting letter relative to the amount of oil on hand, the roads, the Barnsdall well, A. C. Ferris' visit to the wells, the leasing of land, and building activity in Titusville. Townsend Collection #292, Drake Museum.

Titusville Mch 5 1860

Mr A Pierpont
Secy. Seneca Oil Co.

Sir.

We are still Barrelling oil. and holding it in store here. We have now 38 Bbls at Union and 120 here making 358 Bbls on hand after shipping 61 Bbls which I informed you in my last

The roads are getting almost impassable as the mail is 12 hours coming from Union 22 miles—

The Barnsdall well is still yielding finely and report says 20 Bbls a day there is no doubt but it is *now* yielding well—and there are reports of others finding oil. And before navigation opens in the Spring there must be a heavy stock of oil on hand here to be sold at some price. As the most of the men engaged in the business will be compelled to sell in order to meet the current expenses as they have used up all their available funds in sinking the well

Mr Drake is now absent and has been nearly all the week. Ferris of N. Y. has been here and staid one day, and offered to buy oil at 20¢ but I believe he did not get any one to ship him at that price he was in charge of the "Eminent Lawyers" & Dr. Brewer.

We are having a plenty of outsiders looking for oil claims and the cry now is $200 per acre and ¼ to ⅓ of the oil, and with many of the leases, there is a fine chance for some petty lawyer to be the source of a good deal of trouble & expense.

The people are beginning to look around here for building lots, and locating for different branches of mechanics, and I have no doubt there will be a good deal of building going on here for a class of People that have been in sleepy state deeper than that which came over "Rip Van Winkle."

Brewer Watson & Co have sold all their mills Real Estate &c to a company from Keysville (north of Troy) for $60,000. they take possession 1st April

We are in a bad fix with our mails, as the Rail Road Co have been operating from Union to Erie under the contractors from the Government and getting no pay from him, refuse to carry it any longer so that we are 26 miles further in the woods than we were before

Having given you a good deal of gossip and not much business I will close with ....

Respectfully Yours

R. D. Leonard

62. E. L. DRAKE TO JAMES M. TOWNSEND

F. Streng & Company, commission merchants in Manchester, England, offers its services to Drake in the marketing of petroleum in England and Europe. Drake has received orders for oil from two railroads. Ferris has been in Titusville. Townsend Collection #273, Drake Museum.

Titusville March 11th 1860

Friend Townsend

I last evening recd a Letter from F Streng & Co Manchester England who represent themselves as being Commission Merchants. But I will give you a copy verbatim ad literatim (as the saying is)

Mr Drake. Titusville Pa
Dear Sir

Having heard of your extraordinary discovery of oil possessing such superior qualities we beg to offer to you our services for its sale both in England and on the continent of Europe. Our business is that of commission Merchants & we have corespondents and Agents in all the manufacturing Districts and places of Commerce &c &c. Should be enabled to give to your Oil the most extensive sale by introducing it almost simultaneously in all parts of Europe. We are confident of great success and should be verry glad to be entrusted with your general Agency for Europe. Hoping soon to be favoured with your kind reply we remain yours &c

References

Thos Hoyle & Son Manchester Messrs Conlon & Co London

Messrs Conlon & Co London Brugobenan & Co Bussells besides some Dutch and French names that I cant make out.

I wish you would let me know what your Brother William has done and what you think best to do. I think it would be best to open a corespondence with them I shall write them that I will send them an answer by next or the following Steamer with regard to the Agency if we satisfy ourselves with regard to ther responsibility. If your Brother is in N H or N York you can get all the information we want and if he is in Europe write him to call and see these folks At last I have rec^{d} a small Order from the Cleveland & Erie Rail Road and the Mast Machinist on the Sunbury & Erie pronounces it a first rate Lubricator and will work any where. It takes time and work to introduce it but I shall succeed I know

E L Drake

Mch 11/60

Mr. Ferris was here and offered the enormous sum of 20¢ pr Gall for the Oil at the works. He did not call upon me at all but devoted his whole time to Brewer and Watson but it did not amount to any thing he is a gas Bag I have been shut up in the House the past 5 days about half sick shall get out as soon as the weather clears up it is storming now. Smith has gone to Butler on business of his own will be back next Saturday

My family all got colds but not sick

Yours &c

E L Drake

63. Agreement Between E. L. Drake and George M. Mowbray for Marketing Petroleum

While in Pittsburgh in February or March, 1860, Drake happened to meet George M. Mowbray, a chemist associated with the wholesale drug firm of Schieffelin Brothers & Company of New York. The meeting was fortunate, for Drake wanted to get his new product on the market and Mowbray knew the value of petroleum. On March 12, 1860, the two men signed an agreement for the marketing of petroleum. This copy of the agreement is found in the Townsend Collection #404, Drake Museum.

Memorandum of an agreement made & entered into this twelfth day of March 1860 between E. L. Drake of Titusville party of the 1st part and Geo Mordery Mowbray of the second part, Witnesseth

That the party of the 1st part has agreed and does hereby agree to consign to the party of the second part, or to such parties as he may direct, all the oil that the party of the 1st part may obtain by pumping or otherwise from such well or wells as he now or hereafter may be interested in the States of New York or Penna or elsewhere for the period of five years from the date hereof, on the terms following to wit, allowing the party of the second part 7½% commission for selling said oil—he to guarantee payment for all sales made by him rendering the nett proceeds, to the party of the first part, after deducting all charges whatever, including commissions on above advances and interest, at the rate of 7% per annum. The said party of the second part to make advances to the party of the first part upon such consignments of oil to the extent of one half the market value of such oil in the City of New York at the time of making such advances, which are not to exceed $3000 $\frac{00}{100}$ in advance of sales, by the party of the 2d part such advances to be made monthly—The party of the 2d part hereby agrees to secure the said oils upon such consignments and to sell the same as rapidly as the same can be sold, and for the best price he can obtain therefor, and make the advances as herein provided, and render an account of sales, and pay over such amts as may be in his hands—belonging to the party of the first part quarterly. In case the party of the second part shall see fit, he shall be at liberty to refine said oil, so as to render the same suitable for illuminating or lubricating purposes, or to make such arrangements with others to refine such oils for a moderate and fair remuneration in which case he shall be entitled to, and it is hereby agreed, may and shall deduct from all sales of such refined oil an additional compensation of two and one half per ¢ over and above the rate of 7½% herein before provided and agreed upon It is further agreed between said parties that the charges on the said oil from and after the arrival thereof at the R R Depot in Jersey City or at the Wharf in said city including drayage, insurance, storage, labor, cooperage, tanking the same removing water and delivering from the store house to purchasers dray, shall not exceed the sum of 2½ cents per gall or $1.00 per barrell and this sum it is agreed by the party of the first part may and shall be deducted from the monies recd from the sales of said oil provided always that the terms "all the oil" used in the foregoing agreement shall not include oil sold or to be sold on a credit 60 days to Wm McKeon of Pittsburgh R. A. Gillmore of Chicago and others now customers of the said party of the first part to the extent of not exceeding in the aggregate 1000 Gallons per week

E L D
G M B

Mar. 12 1860

64. R. D. Leonard to Asahel Pierpont

Leonard reports on the amount of oil in storage at Union. Barnsdall well creates excitement. Drake ready to drill the second well. Townsend Collection #293, Drake Museum.

Titusville Mch 12 1860

Mr A Pierpont
Secy of Seneca Oil Co

Sir

We have now in store here 150 Barrells and probably the stock will be increased as it is almost impossible to cart anything to Union on account of the roads. And I believe Col Drake does not wish to store any more there until that is shipped which is now in store there 236 Barrells.

The spring begins to set the Miners in active operation and Well Frames will be plenty along the creek this summer I can assure you

The Barnsdall well still contains its yield as [it] is the Well that has all the talk now days and they must have a large accummulation of oil on hand. As they are not shipping any as yet—and I have no doubt crude oil will be sold here at a low figure in order to get means to operate with as it takes money to work an oil well.

You will find enclosed a statement of the Books to Mch 1st but I presume there are other bills to be credited which have not been handed in yet.

I have been looking for a letter from you in relation to my bill and am in hopes to get [one] Tuesday.

Mr. Smith has gone down the river to attend to some private business so that there is nothing doing at the 2d well. The Engine and all are ready for Drilling as soon as he returns.

Respectfully Yours
R D Leonard

65. A. C. Ferris to William A. Ives

Ferris has been refining oil from the Drake well, and is somewhat disappointed in the results, but he believes it will burn well. Consequently, he offers thirty cents a gallon for one hundred barrels delivered in New York. Townsend Collection #282, Drake Museum.

New York March 12th 1860

Mr Ives—

Dr Sir—

I have been engaged until a late hour in refining your oil and your proper address is locked up in the store house I can only address as above—

I have give the oil a careful distillation and refining and do not find the result quite up to my expectations in all respects—as I find a considerable portion of it will require two or more distillations with of course a corresponding waste of material—It is also so highly inflammable after distillation that it cannot be used without admixture of Coal oil or some other ingredient—but I succeeded in getting a very beautiful oil in appearance and I believe it will burn well—but the cost is rather more and the waste more than I anticipated

I have today received about 50 Bbls from Brewers well which I shall proceed to refine at once, and then will know more accurately the practical results—If the oil has to be distilled more than once the waste will be fully 20 pr ct or possibly a little more—

I will give you for one Hundred Barrels delivered in New York City 30 cts pr gall Cash and one dollar cash for the Barrels if good new ones—the oil to be guaged by a City Guager and allowance to be made for water if the Barrels contain any which they often do—

When I see you again I will negotiate with you for a Larger lot but until I get more practical results I cannot offer more—

I might add that I gave a sample to an other refiner and requested him to join with me and take 200 Bbls but he declined it—at a lower price I would take more—

Very truly yours

A. C. Ferris

Please let me know by telegraph if you accept my offer—I should expect the oil forward at once—

A C F

66. R. D. LEONARD TO ASAHEL PIERPONT

Bad roads hinder the hauling of oil. The second Drake well is down fifty-five feet. The Barnsdall and Crossley wells attract great attention. Leonard expects a second California in northwestern Pennsylvania. Real estate values rapidly increase. Leonard encloses bill for services rendered. Townsend Collection #291, Drake Museum.

Titusville March 26 1860

Mr A Pierpont
Secy of Seneca Oil Co
Sir

The week again comes around to fill my promise to write you once a week

We are not carting much oil now owing to the condition of the roads also the other wells are paying $1.25 pr Bbl to Union The highest we have paid is $1.00

Mr Smith has returned from his trip to Butler Co and has the 2^d^ Well down 55 ft with very favorable indications

The Pipe is down 39 ft 8 in and at 40 feet he struck a very fair show of oil and still continues to find small veins. And has now every evidence to expect a good well The Crosley well situated ½ mile below us on the opposite side of the creek, and the Barnsdall Well are still attracting a good deal of attention And I have no doubt are holding large quantities of oil at least they have advanced on the price of Barrells to $1.60

The Excitement still continues and the effect will probably be that you will have a 2^{d} Calafornia in North Western Pennsylvania.

It has now arrived to the point where money^{d} men are looking for investments, and what will be the results time alone can tell.

Real Estate in town is rapidly advancing in price and many improvements are in actual progress and many more contemplated.

I cannot close this letter without calling your attention to my bill of Labor sent you over one month ago and from which I have received not even a reply

I cannot avoid telling you Sir that I am surprised after your telling me here that "We had hired you and we would see you paid." Mr Drake informs me that he has received no directions in relation to the matter from you

And I certainly have had no orders from you or any member of the Seneca Oil Co to ask Mr Drake for my pay And with whom

I have made no contract although I believe my part of the business has been performed in a manner perfectly Satisfactory to Mr Drake by whose directions I was to be guided

I received a letter last week from Mr Townsend saying "he was surprised that I should send for money and supposed that Mr Drake would pay all bills here" I replied to him by saying that I had made no contract with Mr Drake, that my contract was made with the members of the Seneca Oil Co at New Haven

I also enclosed my bill to April 1st amounting to $175—and which I hope will claim your immediate attention—Also telling Townsend to say to the Members of the Co that it will be necessary for them to provide some one to take my place on or before April 10th next

Trusting that you will find some one who will be more faithful to you than I have been and who will fill the Situation more satisfactorily to you

I am

Respectfully Yours

R D Leonard

67. Drake is Asked to Resign as President of the Seneca Oil Company

Just as Drake completed his drilling of the second well, the Directors of the Seneca Oil Company requested that he resign as President. The following is a record of their action taken on March 26, 1860. Minute Book, Townsend Collection #236, Drake Museum.

March 26 1860

At a special meeting of the Board of Directors of the Seneca Oil Co holden March 26th, 1860. Present A Pierpont, W A Ives, Jas M Townsend, and E B Bowditch, the following votes were passed

Voted—That for certain reasons the President E. L. Drake and Secretary and Treasurer A. Pierpont of the company be requested to resign their several offices and agencies.

Voted—That no contract made by any officer or agent of the Company, shall be binding unless approved by the board of Directors.

Voted—That Wm. A. Ives be authorized and requested to go to Titusville, Pittsburgh and other places to look after the concerns of the Co. especially all accounts due, and all indebtedness of said Co and report forthwith

A Pierpont having complied with the above request, and resigned the offices of Secretary and Treasurer it was Voted that E. B. Bowditch be and he is hereby appointed Secretary and Treasurer of the Company—

Voted—That the arrangement entered into by W. A. Ives with E. S. Walcott of Providence for the sale of oil by which said Walcott is to receive ten per cent commission on sales until January next, be approved

Attest E B Bowditch, Secty.

68. William A. Ives to Edwin B. Bowditch

On May 19, 1860, the Directors of the Seneca Oil Company voted that it should prepare at once to distill petroleum. Ives at once wrote Bowditch, Secretary and Treasurer of the Seneca Oil Company, proposing that he should be placed in charge of the Company's business. The letter was received by Bowditch on May 21, 1860. Townsend Collection #286, Drake Museum.

Mr Bowditch

Dr Sir—I have a few things I wish to say to you & I take this way of doing so as the most convenient. The action of our Board Saturday night was necessary & judicious. It has placed you in a position to do something. I will only say that I am sorry a similar vote was not passed last Sept. The failure of our Co to make money hitherto has been the inefficiency of our agent & the divided Councils of our Board & if these causes continue the same effects will follow & all the money we may hereafter raise will be lost. The distillation & refining Oil is a difficult & uncertain opperation & to succeed even with ours will require *skill good judgment* & Constant care. I do not suppose you propose to give your *whole* or *any* considerable portion of your time to it. I also suppose from what has been said that you expect me to do *Something* about it, exactly how or in what Capacity of course I do not know, but there is but one way in which I can be of *any Service* to the Com or myself or can do anything with the least prospect of success & that is to be put in charge of the business of the Co under a *general* direction of the Board I do not think this will be done but there are some of my reasons for thinking it *should* be

It is absolutely necessary if we go to distilling Oil that *some one person* should devote his time & Study to the business & be made to feel & be held responsible for its sucess & if this is *not* done we had better stop where we are. This cannot be done by a Board of

Directors even if they all give *all* their time to it, for they could not all think alike or accomplish the same thing by the same measure or in the same way & of course this difference of opinion would nutrelise our efforts & nothing would be done & so of all our business. In the second place I believe I am capable of doing it & am the only one of the Company who is, that *will give his* attention to it and further I have a larger *interest* at Stake than any other one. I have a *greater responsibility* & this *should* be considered & you must excuse me for saying I think it *has not been* enough so. There are many *other* reasons but I have not time to write or you to read. I simply propose if you will make me the agent of the Com. to take hold of its business as if it were my own & be *responsible* for its success. The money should all pass through the Treas as at present but the business should be done by me under a general (*not specific*) direction of the Board. If this is done I will do the best I can & unless *I am* successful & put the means *into* the *treasury* I *will not charge anything for my services* or time, but if I *do* succeed my pay shall be the same as was agreed upon when I was last appointed & continue from that time. I will give a full a/c of all I do & of all expenses just as often as the Board direct. If this is *not* done & I frankly say I have not *the least* expectation that it will be I beg of you to appoint some other one (not Drake) but some *honest* man & put the same *responsibilities* upon him that *I* propose to take. If you are satisfied with Mr French appoint him. He can do better *alone* than with me or anyone else to help him. If you are *not* Satisfied with him appoint even Mr Pierpont for I honestly believe if the responsibility was laid upon "old Seneca" and he was allowed to go forward he would do better than we *all Should* together. These are my honest convictions & I commend them to you & Mr. Townsends notice, for all the money to be raised must come from us three I am satisfied. What we got from Mr French or others will not hurt us or them. And now in Conclusion let me say in all Kindness that if upon this matter as upon almost every other we differ in opinion that I *must withdraw* from your *Councils, only* as a director to be present at your monthly meetings & as I am *confident* I can do *you* no good myself Either I only embarrass you and vex myself. I will bear my share of the burden if there is the *least* prospects of success, but you must excuse me for saying that if Mr. Drake is continued I can do nothing. *If I* do *anything* I Should propose to go to Boston at 3½ oclock, complete my arrangements with Mr [Warren] *in writing,* engage the Stills to be made, then take Mr Root to Titusville enstall him in the best & most economical manner, make arrangements for freight to come forward at regular & low rates—and as for Mr Drakes affairs I want nothing to do with him or them. You or French can settle them. And I wish you to decide this matter at once & let me know after Consulting with Mr Townsend drop a line in the P. O. *I* feel as if every day was important & that our business West as well as here needed *immediate* attention & that *two weeks* should not be wasted. If this had been done a few weeks ago it would have prevented Drake from making his last return in his own name & thus *undoing* all we had be [been] so careful to accomplish. I tell you my friend these things are important

Yours
W A Ives

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69. George M. Mowbray to Edwin B. Bowditch

Mowbray is constructing an experimental still. He suggests that the Seneca Oil Company determine what they will do with their surplus oil. Will they and other owners of wells hold the oil or sell at a lower price than Schieffelin Brothers have been paying? Townsend Collection #297, Drake Museum.

170 William Street
New York
July 16th 1860

To Bowditch Esq

Dear Sir

Owing to my absence I find I shall be delayed about 10 days viz until the 26th Instant before the experimental Still I am constructing is ready for operation. To prevent disappointment, I think it would be better that Mr. Pierrepont should not come on until that time, and I will write you also about Monday next so that there may be no uncertainty whatever on the subject.

I presume Mr. Truman French has returned and I trust most sincerely that he has effected a satisfactory settlement.

I think, for the sake of the Seneca Co. first, and for the manner that Schieffelin Brother Co. have met your wishes next, you should determine at the same meeting that you consider the proposed settlement, what you shall do with your surplus Oil, beyond what you may determine to refine yourselves, or in any factory any or all your directors may become interested in: S. B. Co. have made considerable advances to sustain the price, are also sustained in their movements by the principal refiners themselves, and but for their efforts assuredly this Oil would now be, not only a drug in the market, but a drug at 15 cents per Gallon; whether this low price is to be reached, will depend on the fact whether the Proprietors of wells, have sufficient self-denial to hold their oil, whilst we are selling at 30 cents or whether they will commence selling at a lower price which we must immediately conform to in self defence until we have sold out our stock. The failure of Mr. Ives to effect any sales, the loss sustained in leakage by holding on, must have advised you that this Seneca Oil does not come within the ordinary course of Sales of articles of every day consumption, but requires extraordinary care in putting on the market—Such has at least been the experience of ourselves, and others, owners of Oil wells—

It is of course understood that any communications made to Mr. Pierrepont, are to be as guides to refining and not with a view to qualify that gentlemen to effect sales, nor to furnish data for him to sell the Oil by—

Faithfully Yours
Geo. M. Mowbray

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70. E. L. Drake to the Secretary of the Seneca Oil Company

Statement of the amount of oil produced at the company's works for the quarter ending July 31st, 1860. Townsend Collection #383, Drake Museum.

Titusville Aug 1st 1860

Secretary Seneca Oil Co

Dr Sir

There has been raised and Barreled and sent from the Cos Works here five thousand and seventy four Galls (5074 of Oil during quarter ending July 31st 1860

Sworn to and subscribed
before me this first day
of August A D 1860
E. H. Chase
For Penn

E L Drake
E. E.

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71. E. L. Drake to James M. Townsend

Drake empowers Townsend to act as his attorney. He also sends a report on oil production to July 31, 1860. Pump for the new well has been received. The Drake Well is still producing. Titusville is full of oil speculators. Townsend Collection #272, Drake Museum.

Titusville Aug 1st 1860

J M Townsend Esq

Dr Sir

I this Morning recd a Letter from Bowditch of July 28th in which he informs me there is a prospect of a division with the Penn R Oil Co. I hope a fair and equitable one. As he requested I enclose power of Attorney to you. I also enclose a/c of Oil raised for quarter ending July 31st have shipped to S. B. & Co N. Y in July 101 Bbls containing 3756 Galls & E B B New Haven 12 Bbls containing 426 Galls Mr French is here looking up Witnesses dont know when he will get through thinks of going to Meadville tomorrow Have recd the Pump for the new Well shall get it in this week. The old Well is going first rate. have on hand now in the Vats I suppose fifty Bbls which I shall ship off as fast as possible. I understand by parties here that Oil has advanced 3¢ pr Gal in N. Y. I am glad to hear it

My family have returned all right and I am once more living like a white man.

Mr French is now in the Office and says that the news from Bowditch places him in a predicament he feels uncertain how to proceed he however thinks best to proceed no farther only to renew Brewers Caviat against Robinson claim so that he cant obtain a Patent on the land.

French thinks he shall get to New Haven on Tuesday or Wednesday of next week

The Town is full of anxious seekers all determined to make a fortune or bust in the attempt.

Weather fine and crops abundant &c &c

Respy yours &c

E L Drake

72. AMOUNT OF OIL SHIPPED BY DRAKE IN SEPTEMBER AND OCTOBER, 1860

Townsend Collection #387, Drake Museum.

Amt of Oil sent forward in Sept

S B & Co [Schieffelin Brothers]	45 Bbls	
E B B [Bowditch]	91	
	136 Bbls	5092 Galls

In Oct we have sent forward

To S B & Co.	211	Bbls	8032	Galls
To E & Bissell	6	"	229	"
	217		8261	

73. E. L. Drake to Edwin B. Bowditch

Statement of oil shipped by Drake during the month of November, 1860. Townsend Collection #381, Drake Museum.

Titusville Nov 30th/60

E. B. Bowditch Esq

Dear Sir

Below please find the quantity of Oil shipped from the Works in month of November

S B & Co	95	Bbls	3700	Galls
E & B	94	"	3702	"
Liddell & Marsh	1	"	40	"
A. L. Leonard	1	"	40	"

Nothing new transpired since your Agt left

Yours &c

E L Drake

74. E. L. Drake to F. A. Townsend

Bowditch resigned as Secretary and Treasurer of the Seneca Oil Company on September 10, 1860, and F. A. Townsend was appointed as his successor. Drake is glad that the company has adopted a plan for paying its bills each month because coopers, teamsters, and wood men harass him for the money due them. Townsend Collection #266, Drake Museum.

Titusville Feb 9th 1861

F A Townsend Esq

Dr Sir

Yours of Feb 2nd rec^{d} yesterday. The Pkg you speak of has not arrived yet but will some time probably so far as taking Receipts is concerned you know or ought to know that I do not pay the Bills but you can explain that to the Cos Agt who I have no doubt (if you tell him times enough) will understand it

I am really glad to learn that the Co have adopted the plan of settling up every month and at a fixed time each month, for as it is now

I (who have no more to do with paying the Bills than the man in the Moon in one sense) am harrassed and bored to distraction almost by Coopers Teamsters & Wood Men for Money. But now it can be understood that they can call at the Cos office on the 10th when that does not come on Sunday and when it does then pay on the 11th I have been sick and shut up in the House since the 29th so I have not got the a/c up yet but shall begin upon them on Monday.

Yours &c

E L Drake

75. E. L. Drake to F. A. Townsend

High water has prevented Drake from reaching his oil wells. A new well on the Kingsland meadow has been completed, and it flows. Townsend Collection #274, Drake Museum.

Titusville March 8th/61

F. A. Townsend Esq

We are and have been flooded since last Saturday the upper end of the Wing dam between the Bridges is washed away so that we could not get to our works with a Team until today. We have been out of Wood all the week have got two loads over today and got one load of oil away 6 Bbls. The latest novelty is a Well that has been bored at the end of the Bridge on the Kingsland Meadow from which they have put up 52 Bbls of Oil since yesterday 4 Oclock ie in about 24 hours This Oil is the property of N Kingsland & Co or (as pr legal papers) Truman French. I think they will begin to send it off soon and he should have had his papers all ready to be served but I suppose he knows his own business best

He is in Harrisburg I think Hope we shall get the Bridge fixed to day so that teams can cross without trouble. Don't know when the Mail will go, have had but one this week from Union

Yous &c

E L Drake

The Well spoken of is a flowing Well

D

76. E. L. Drake to F. A. Townsend

Drake thinks that French ought to be in Titusville to prevent encroachment upon the company's property. Townsend Collection #269, Drake Museum.

Titusville March 14th 1861

F A Townsend Esq

Dr Sir

Since writing there has nothing happened out of the regular course of the things. There has been 128 Bbls of Oil shipped from the Saxton Well the one I mentioned in my last as being on the Kingsland Meadow. I think French had ought to be here to see to it if the Co intend to fight for it, it is high time to begin. The Men are whining for their money but will live through it I think.

It is very Muddy the Roads almost impassable have had but one mail through from Erie this week but expect one tonight as the Stage left Union yesterday Morning and is somewhere on the Road or under it. I am in hopes it will bring an Agt as matters need his attention here

Give my respects to your Brother James

Yours &c

E L Drake

77. Drake's Account for February, 1861

Townsend Collection #389, Drake Museum.

Titusville, Penn., March 1st 1861

Statement for The Month of February

Cash on hand from last statement	$49 75/100
Cash from Treasurer during month of	

BARREL ACCOUNT.

O. Noble & Co.	130	Barrels, at $2.04	265 20

LABOR ACCOUNT.

4 Number of Men employed

E L Drake				83 34
Wm A Smith & Boy	24 Days	at $3		72 00
John Keany	24 "	" 1		24 00
Geo. B Congdon	5½ "	" 1	Paid	5 50

TEAMING ACCOUNT.

R. W. Porter	59	Barrels at $1	59 00
A. L. Leonard	16	“ “ “	16 00
J. W. Hunter	42	“ “ “	42 00
John Maynard	41	“ “ “	41 00
E L Drake	Hauling Wood 4 days		12 00

SUNDRIES.

SHIPMENTS OF OIL.

Scheifflein Bros & Co. 158 Barrels, 6320 Galls, at
700 No. of Barrels on hand, Iron Hooped
25 “ “ “ “ “ Wood ”
One Estimated No. of Cords of Wood on hand
20 Bbls. “ amount of Oil in Vats,
000 “ “ “ “ “ Barrels

E.E.

E L Drake.

78. Drake's Account for March, 1861

Townsend Collection #390, Drake Museum.

Titusville, Penn., April 1st 1861

Statement For the Month of March

Cash on hand from last statement
Cash from Treasurer during the month of

BARREL ACCOUNT.

Wm Burger	58	Barrels, at	$2 00	116 00
Do	1	“ “	1 50	1 50
J I Cornell	42	“ “	2 00	84 00

LABOR ACCOUNT.

4 Number of Men employed,

E L Drake	26	Days at		83 33
W A Smith & Son	26	“ “	3 00	78 00
John Keany	25	“ “	1 00	25 00
H P Hill	7	“ “	1 00	7 00

TEAMING ACCOUNT.

John Maynard	5	Barrels at	1 00	5 00
R W Porter	32	" "	"	32 00
J W Hunter	17	" "	"	17 00
Do Do		for hauling boiler		7 00
E L Drake		" " Wood		39 00
" " "		Work on Road & Bridge		6 00

SUNDRIES.

John Long	5	Cords of Wood at	$1 00	5 00
John Kerr	20	" " " "	$1 12¼	22 50

SHIPMENTS OF OIL.

S B & Co. 54 Barrels 2160 Galls at
800 No. of Barrels on hand, Iron Hooped
26 " " " " " Wood "
3 Estimated No. of Cords of Wood on hand
50 " amount of Oil in Vats,
50 " " " " " Barrels,

E E

E L Drake

79. E. L. Drake to James M. Townsend

R. D. Fletcher, a Titusville merchant, loaned Truman French some money; French's draft to Fletcher was lost; and Fletcher cannot secure his money. The price of oil is low, and little oil is being shipped. Townsend Collection #267, Drake Museum.

Titusville May 25th 1861

J M Townsend Esq

Dr Sir

At the request of Judge Church I met him in Pittsburg. also met Mr. French there. Before going Mr. Fletcher wished me to ask Mr French if he could not arrange the matter of the lost Draft so that he could get his money, which he loaned in February merely to accomodate Mr. French, He recd a Drft of Mr French which he sent to Gordon Fellows & McMellen Nos 14 & 16 Beaver St New York they recd the Draft and sent it to New Haven and have not heard of it since and they refuse to give Fletcher cr — Mr French gave another Drft together with a Bond to me in Pittsburg for Mr Fletcher to sign when I was to deliver him the Drft. He refused to sign the Bond as it held him for $100 which he has ordered not to be paid and claims that is the only protection a man has in sending a Drft he can stop the payment in case of miscarriage. He wished me to write you on the subject and ask you if you would not correspond with Gordon Fellows & McMellen and see if it could be arranged to the satisfaction of all concerned. The Seneca Oil Co are under some obligations to Fletcher and I feel anxious that it should be arranged (ie) I should feel anxious if I was concerned in any way in the transaction.

No News of importance Oil is flat and but few wells pumping only on half time nobody sending any forward but only Watson and Co and they say they wish to see it down to five cents pr gall. Mowbray has gone to Europe, and the inhabitance feel very Warlike &c &c

Respy yours
E L Drake

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80. E. L. DRAKE TO F. A. TOWNSEND

Drake needs money to pay teamsters. Townsend Collection #275, Drake Museum.

Titusville Aug 13th 1861

F A Townsend Esq
Dr Sir

I wrote to Mr French on the 7th informing him that it would be necessary to send some Money to pay the Teamsters with as they are out of it. All are sending forward Oil now and every Team is engaged and get their cash every trip two of our old Teamsters went to work [for] Watson because they were out of Money and must have some to pay expenses on the Road. It is verry muddy and teams are taking but 5 & 6 Bbls at a Load today. I should send my team but have not had money enough to pay the expense on the Road so keep them at home.

I would not have troubled you with this Letter but wrote me to send the Oil to Union and now the Teamsters are haunting me for money and this you know is rather unpleasant for one to be dunned upon Matters that dont concern him at all.

Kind regards to James

Yours &c
E L Drake

81. E. L. DRAKE TO JAMES M. TOWNSEND

Apparently a railroad company wishes a right of way through the property of the Seneca Oil Company. Drake makes a proposal to the oil company to lease its wells and works. Townsend Collection #259, Drake Museum.

Titusville Aug 23d 1862

Friend Townsend

Yours of the 16th recd and I was much surprised to learn that you have so Careless a person about your Bank as one who would open one of your private Letters and destroy all but the Envellope

In that Letter I enclosed the form of Lease the Co use and which they wished to have signed by the Co or one authorized to do so. They wish to run the Road along the side of the Hill on the west side of the creek, and wished the Co to give them the right of way, as for selling anything here now it is out of the question.

I would like to hire your wells and appurtenances and pay you the cash for the use of them. I will take them and be at all the expense of working them and pay you twenty five cents pr Bbl for all the Oil I pump and give good bail for the payment the Co could at least receive $1000, pr. year and I think $3000. You all feel different from what I do. You all have your legitimate business which has not been interupted by this opperation, which I staked everything I had upon the project and now find myself out of business and out of money. Let me know immediately what you or the Co will do as if I take the Wells I want to be getting an Engine as I shall have to get one to pump with

Resply Yours &c

E L Drake

82. E. L. DRAKE TO JAMES M. TOWNSEND

Drake estimates his profits in case he leased the wells from the Seneca Oil Company. He has little upon which to live except what is invested in that company. The railroad from Corry to Titusville will reach the latter place in September. Townsend Collection #261, Drake Museum.

Titusville Sept 4th 1862

Friend Townsend

Yours of the 1st is at hand, and I am pleased to learn that you found the Document in question as I had no more of them. An Engine would cost $5 or 600, I presume. If I could have leased the Wells I should have hired one to Pump with. Oil is worth $1.50 per Bbl at Titusville. and will not be any lower at present. I based my calculation upon that price and pumping 15 Bbls per day, paying the $3.75 to the company cost of pumping and putting up and Hauling to town say $10, making $13.75 receiving the Oil $22.50 leaving 8.75 for my share. But if the Co will work the Wells so that I may receive something to live upon I should be glad for you know I have nothing only what is in that property. If I was worth what you or Bowditch are I would not care whether they were worked or not. I could stand back and not work myself or let another do it. The Rail Road is completed to Centerville ten miles from this place and most of the grading is done to here, intend to come in on the 20 Sept

Respy your &c
E L Drake

83. Drake's Account with R. D. Fletcher

The following is the account of Drake with R. D. Fletcher, Titusville merchant, who extended liberal credit to Drake. Fletcher also endorsed Drake's note at a Meadville bank when he was financially embarrassed and needed a loan. The original page from Fletcher's ledger showing Drake's account is in the Drake Museum.

E. L. Drake a/c

6/5/58			
3/25/59 6/5/58 3/25/59		154 11	
Cr			
Goods Del^{d}	2.93		
3/15/59 Teaming	1.87	4 80	
Bal due 3/25/59			149.31
Apr 7/59 Cash			100.00
Bal due			49.31
4/7/59			
from 4/7/59			
10/10/59 10/10/59		164 93	
Cr cash p^{d} by Smith		96	
			163.97
bal due Oct 7/59			213.28
10/7/59 10/10/59 7/26/62		333 92	

7/26/62

Oil lamp sales 1860	23 85	
7/10 1860 Seneca Oil Co.	56 90	
Aug 1861 Interest date	60 38	475.05
		688.33

Credit

1859				
Oct.	29	By M—retd	72	
Nov.	19	" S F. & G	48 47	
1860				
Feby	17	" M	37	
Mar.	3	" Oil Co	28 50	
Apr	24	" Cash	1 82	
Mch	25	" Mdn	38	
	27	"	28 40	
July	10	" Seneca Oil Co	93 07	
1861				
Jan	14	" Amt p^{d} Barnsdall	13 38	
March	26	" Oil & Lamp Sales	17 92	
Aug	10	" Int to date	20 74	
1862				
May	5	" Stove	1 50	255.27
		Bal due R D F		433.06
1863				
Nov	21	To Cash		20.00
		" Interest		48.49
				501.55

Cr

1863				
Nov	21	By Sundries	101 11	
	28	" Cash	400 44	
			501 55	501.55

Renewal of Drakes note at Dicks Bank Meadville for $500 Dec 15 1859

Peter Wilson & R D Fletcher—endorsees

84. DRAKE'S ACCOUNT WITH THE SENECA OIL COMPANY

The following record, taken from the Ledger of the Seneca Oil Company, is significant in showing how much money the company sent to Drake from April, 1858, until the end of 1861. It disproves the theory widely held in the oil region that the company sent Drake to Titusville as its agent and then failed to provide him with funds to carry on operations. Ledger of the Seneca Oil Company, Townsend Collection #238, Drake Museum.

E. L. DRAKE

		Dr						Cr			
1858						1858					
April	20	To Sundries	1	$500	50	Mar	27	By Sundries	1	$8	95
June	14	To " "	2	1	00	May	29	By " "	1	5	98
Aug	14	To " "	2	500	00	June		By " "	1	18	88
Oct	30	To " "	3	505	00	Aug		By " "	2	76	79
Dec	30	To " "	3	483	58	Oct		By " "	2	131	25
1859						Nov		By " "	3	219	43
April	2	To " "	4	500	00	1859					
Sept		To " "	7	1118	00	Jany		By " "	3	39	81
Nov	12	To " "	13	400	00	April	20	By " "	4	234	25
Dec	20	To " "	20	1118	00	July		By " "	5	81	62
1860						Sept		By " "	6	94	62
Feb	27	To " "	47	500	00	Oct		By " "	9	143	60
Mar	24	To " "	52	1056	31	Nov		By " "	14	380	05
"	"	To " "	53	941	36	"		By " "	16	60	80
April		To " "	66	30	45	"		By " "	17	10	00
"	13	To " "		1000	00	Dec		By " "	21	438	22
July	2	To " "	70	2	13	"		By " "	22	286	59
"	9	To Cash		200	00	"		By " "	23	39	00
"	13	To "		200	00	"		By " "	28	13	25
July	26	To Cash		36	13	Dec		By Sundries	31	909	83
Aug	31					1860					
Sept	17	" "		52	75	Jany		By "	41	618	98
						Feby		By "	48	732	83
						Mar		By "	53	441	36
								By "	56	89	88
								By "	56	463	05
						April		By "	62	15	25
						"		By "	66	978	47
						"		By "	66	3	84

						May		By "	69	26	88
						June		By "		2	13
								By Salary		2000	00
						Aug	31	By Salary 2 months		166	67
						Aug	31	By Sundries	76	52	75
						Sept	17	By Note to Bal		360	20
				$9145	21					$9145	21
Sept	18	To Cash	78	24	68	Sept		By Sundries	79	129	00
Nov.	1	To Cash	84	15	00	Oct		" "	83	116	08
"	27	To Cash	"	17	00	Nov.		" "		83	33
Jan	26	To Cash	90	100	00	Dec.		" "	88	128	84
Feb.		To Cash	92	52	00	Jan		" "		135	33
Mar		" "	93	12	00	Feb.		" "	92	95	34
April		" "	95	45	00	Mar.		" "	93	128	33
Sept.		" "	101	18	25	April		" "	95	85	33
						May		" "	97	77	42
						June		" "	98	78	92
						July		" "	99	45	43
						Aug.		" "	100	56	17
						Sept.		" "	101	41	67
						Oct.		" "	102	20	00

85. COPY OF A CONTRACT TO SELL THE OIL PROPERTY OF THE SENECA OIL COMPANY

On March 7, 1864, the Board of Directors of the Seneca Oil Company voted to sell their oil property for $10,000, and James M. Townsend was appointed their legal representative to execute the transaction. A copy of the agreement follows. Townsend Collection #322, Drake Museum.

This agreement made & entered into this eighth day of March 1864 by & between Geo. M. Steele of the City of Brooklyn & state of New York of the first part and Jas. M. Townsend of the City of New Haven State of Connecticut party of the second part, is as follows:

The said party of the first part has this day purchased and the said party of the second part has sold and by these presents and in consideration of one dollar in hand paid the receipt of which is hereby acknowledged they do hereby purchase and sell all the lands rights &

interests conveyed by deed bearing date 8th day of Sept 1860 and recorded in the office for the recording of deeds etc. in & for the County of Venango and state of Pennsylvania in deed book S. Pages 3 & 4 Oct. 9 1860 from Sidney Mouthrop to Truman French Jas M. Townsend William A. Ives & Edwin B. Bowditch, together with all the lease hold rights conveyed by Ebenezer Brewer & others to Asahel Pierpont & William A Ives & others on the 9th day of Jany 1855 or so much thereof as may be included in said deed. In consideration of said Party of the second part executing and delivering to said party of the first part a deed of special warranty of the foregoing described property then the said party of the first hereby agrees to pay the sum of ten thousand dollars.

Witness in hands & seals this 8th day of March 1864

Geo. M. Steele

Signed

J M. T.

86. Seneca Oil Company Pays Drake in Full in 1864

Townsend Collection #360, Drake Museum.

$731.00 New Haven May 17 1864

Recd of Jas M Townsend Agt for Seneca Oil Co Seven hundred & thirty one Dollars which amt. is in full of all demands against se Co.

E L Drake

New Haven May 17 1864

The above amt. includes certain Notes in my hands given me by the Seneca oil Co. for advances made to se Co. which notes I cannot find at this time, but promise when found to return to se Co.

E L Drake

507.98 note
233.02 int. [These figures appear at the bottom of the page.]
731.00

PART IV

COLONEL E. L. DRAKE AFTER 1863

PART IV

COLONEL E. L. DRAKE AFTER 1863

After the completion of the Drake Well, Colonel E. L. Drake was elected a Justice of the Peace in Titusville. In 1863 he sold his home in Titusville, left the oil region, and went to New York where he engaged in selling oil stocks and land. By 1866 Colonel Drake had lost most of his money through speculation, and his health was greatly impaired. The following letters and documents reveal Drake's desperate plight, the effort made in Titusville and the oil region to relieve his financial distress, the controversy aroused in making this effort, and the provision made by the Commonwealth of Pennsylvania to aid Drake.

87. E. L. Drake to Peter Wilson

Homer Pastorius Collection, Drake Museum.

59 Liberty St New York, May 19th 1866

My old Friend Wilson

If you have any of the milk of human kindness left in your bosom for me or my family send me some money. I am in want of it sadly and am sick

Yours Fraternally

E L Drake

88. E. L. Drake to Peter Wilson

Homer Pastorius Collection, Drake Museum.

Castleton Oct 25th 1866

Friend Wilson

For God sake send me some money I am in want of some have been sick most of the time since I was out there & need money to pay board for my family. direct to me at no 59 Liberty St New York as before

Yours fraternally

E L Drake

89. CALL FOR A PUBLIC MEETING IN TITUSVILLE TO ASSIST COLONEL DRAKE

When Titusville heard of Colonel Drake's physical and financial distress, some of the leading men of the community issued the following call for a public meeting to consider relief measures. It appeared in the *Titusville Morning Herald,* November 30, 1869.

A public meeting will be held at Corinthian Hall on Wednesday evening, Dec. 1st, at eight oclock to consult and take proper measures for the relief of Col. E. L. Drake and family. Mr. Drake's ill health and straightened circumstances would seem to give him a peculiar claim upon the sympathies of the people of this region. As he was the pioneer in oil development, and our prosperity as a community is owing largely to his persevering and indefatigable exertions in prosecuting that discovery to a complete success, all interested in the object of this meeting are respectfully invited to be present.

R. D. Fletcher
E. H. Chase
Wm. Gardner, Pioneer
Fred Bates
F. W. Andrews, Pioneer
G. M. Mowbray
C. C. Duffield
J. C. Bryan
Geo. O. Moody
Chas. H. Ames
Jon. A. Watson
F. W. Ames
Henry Purdon
Peter Wilson
James Rice
Chas. H. Smith
I. G. Jackson
J. Strauss
Smith & Hinkly
and others

90. REPORT ON THE PUBLIC MEETING HELD IN TITUSVILLE TO ASSIST COLONEL DRAKE

The following story, appearing in the *Titusville Morning Herald,* December 3, 1869, is an account of the public meeting held in Titusville to consider measures for the relief of Colonel Drake.

Pursuant to notice, a public meeting was held at Corinthian Hall, on Wednesday evening, December 1st to concert measures for the relief of Colonel Drake. Geo. M. Mowbray, Esq., was called to the Chair and Henry C. Bloss appointed Secretary.

The Chairman made the opening remarks saying that a great many people in this region would very cheerfully have rendered assistance to Col. Drake, had they been apprised of his necessitous situation. The same lively sympathy which would have exhibited itself had he lived in our midst, was hardly to be expected, when he was far away, and we were ignorant of the circumstances in which he was placed. It was enough for us to know that he was reduced to want, that his health was gone, and he was not longer able to fight the battles of life. The time had come for organized action by those engaged in petroleum in all its branches for a testimonial on behalf of the man who had laid the foundations of so many splendid fortunes and had pioneered the way to the grand spectacle of industrial activity witnessed in all this region. In this city, where his discovery originated, should the key note be struck of this benevolent movement; our sister towns would act in concert with us and the great cities, so largely interested in the refining and exportation of petroleum would, if properly addressed, heartily respond to the appeal. Mr. Mowbray proceeded to allude to the early history of the trade, before Atwood had discovered how to treat crude oil with acids and alkali, and to his own business relations with Colonel Drake nine years ago, and gave some interesting reminiscences on this head, reading memoranda from his diary.

Rev. Henry Purdon being called on read some letters from a friend who had lately visited Colonel Drake, who without the knowledge of that person, had taken a friends license disclosing the real situation of his family. The correspondence set forth the following facts. Says the writer:

"I made it my business to take steamer yesterday afternoon (Nov. 26) for Chapel Hill, or rather for Port Monmouth, and then by rail to Chapel Hill, which I reached at half past seven o'clock, after a severe walk, from Middleton station, about an hour, through mud and darkness, I found Col. Drake, his good lady and three children at home, though very much surprised to see me, yet as the Col. remarked, I was a Godsend. I found him very feeble, and when I left him in this morning he and his wife informed me that he had not slept any during the night on account of acute pain. I found them (confidentially) as I supposed, without any of the comforts of life, and living on the bare floor. I was obliged to solicit a night's lodging of a neighbor, there not being any hotel or tavern in the place, or within five miles. You can only reach them by this one route, in the afternoon, and cannot leave until next morning. I am sure the picture of Col. Drake's home would open the heart of any one who has a soul to do good. In speaking to the Col. about there being snow enough in Titusville for sleighing, he exclaimed with tears in his eyes 'Thank God we have not had much cold weather here. What should we do without fuel and my children's shoes worn out, and comparatively nothing in the locker, and I a cripple, if we had a very cold winter?' I cheered him up all that laid in my power, and left with a very sad heart. It is evident that he needs immediate help, and that $1,000 would be very acceptable for present emergencies."

Mr. Purdon also read the following extract from a private letter from the wife of Colonel Drake. It was in response to his personal inquiries, and not designed for the public, but the speaker considered it proper under the circumstances that the facts should be presented to the meeting. Mrs. Drake writes:

"Mr. Drake's health is very poor. I think he fails every day, and he has almost lost the use of his limbs. It has been a long time since he has been able to attend to business, and with our dear little family it has reduced us in circumstances. But we look to an overruling Providence to help us bear our burden. He does not willingly afflict or grieve the children of men. It seems hard to bear, but we know He does all for the best."

Mr. Purdon offered the suggestion that the sum of $500 be raised forthwith by this meeting, for the relief of the immediate necessities of Col. Drake and his family, and that measures be adopted for the accumulation of a fund to be invested in a homestead for Col. Drake. He was of the opinion that the city of Titusville where they were so well known was the place in which they would prefer to make their home. As Col. Drake was unable from physical infirmity to earn a livelihood for himself his family could be best cared for here, and his sons provided with employment as they grew up.

Mr. Z. Martin gave an account of an interview he had during the past month with Col. Drake, whom he had accidently met in New York. He said he was quite startled to see him, as he had just read an obituary notice of that Gentleman in the Titusville Morning Herald, a copy of which he had at the time, in his pocket. He asked the Colonel how he was getting along, and he answered, "Not at all; I am almost discouraged." He had hoped to get a place in the Custom House, but he had failed in that, and he was then walking along the wharves, among the shipping, to see if he could get a job of something. The speaker said the Colonel was thoroughly broken down and afflicted with rheumatism in his extremities, which caused him to walk with difficulty. He asked him if he had any money and he said sixty cents. Mr. Martin averred that the Colonel had on the same coat which he wore in Titusville nine years ago, and of course it was considerably the worse for wear. The speaker said he had extracted from the Colonel an account of his family and the present situation. Some friend had allowed the Colonel the free use of his house and plot of ground at Chapel Hill, and there he was living, his principal meal being, as he said, "potatoes and salt." Mr. Martin spoke of the sympathetic feeling in this community towards Colonel Drake. He heard of offers made daily by oil men and other gentlemen, to subscribe cheerfully to a relief fund, and he was happy to see that the matter was to assume definite shape at last, and not a day should be lost for the case was very urgent one.

Mr. John C. Bryan, of the Petroleum Iron Works, said it would be a lasting disgrace if the oil men, men raised to affluence by the oil development, should suffer the man whose genious had laid the foundation of all this wealth, to want for the commonest necessities of life, and his children go barefoot.

Considerable discussion ensued as to the methods of raising the fund, the manner of its investment, and finally the following preamble and resolutions were adopted:

Whereas, The discovery of petroleum, "the rich men's blessing, and the poor man's boon," the source of uncounted wealth, and the basis of such diversified industries, was preeminently due to the genious and perseverance of our former fellow citizen, Col. E. L. Drake, and

Whereas, It has come to the knowledge of the people of the oil region, that this veteran pioneer of the petroleum trade, is now reduced to actual and severe want, and unable by reason of physical infirmities to earn a livelihood for himself, and his family dependent whooly upon his exertions, therefor

Resolved, That as a matter of common justice and gratitude, as well as friendly sympathy, the people of this region and the oil interest of the country should contribute a fund for the relief of Col. Drake's immediate necessities, and to the purchase of a homestead and the providing of an income for Col. Drake and his family, as a lasting testimonial of their appreciation of the great service he was instrumental in rendering to mankind.

Resolved, That Messrs. Jonathan Watson, R. D. Fletcher, W. W. Bloss, John C. Bryan, and W. W. Kingsland, are hereby designated a committee with discretionary powers to add to their number appoint district committees and take all necessary steps to raise the requisite funds, and carry out the object of which this meeting is the initiatory movement.

The above committee were then instructed to meet the next day, to act promptly as respects an immediate remittance for winter necessaries, whereupon the committee arranged to meet at the office of Jonathan Watson, Esq., at nine a. m. the next morning and the meeting adjourned.

George M. Mowbray, Chairman
Henry C. Bloss, Secretary

91. E. L. Drake to R. D. Fletcher

R. D. Fletcher of Titusville sends money to assist Colonel Drake. Whether it was forwarded as a personal contribution from Fletcher or as a part of the fund raised in the oil region is not clear. This letter was taken from J. D. Henry, *History and Romance of the Petroleum Industry,* Bradbury, Agnew, & Company, Ltd., London, 1914, pp. 171-172.

Chapel Hill, N. J.
December 13th, 1869

R. D. Fletcher, Esq.

Dear Sir,

Yours of the 10th inst., containing two drafts of one hundred dollars each, is received. I assure you this was a Godsend, as I have been confined to the house and yard since November 19th with an almost useless leg and foot, and, being short of fuel, have suffered somewhat with cold, &c. Permit me to thank you and all those who have so kindly remembered me in my affliction.

Respectfully yours,
E. L. Drake

92. Was Colonel Drake Really the Pioneer of Oil Development?

The movement to raise money for the relief of Colonel Drake precipitated a controversy in the oil region over whether or not the credit of being the pioneer of oil development should go to Drake. The following article, which appeared in the *Titusville Morning Herald* on December 24, 1869, represented the commonly accepted point of view in the oil region. In weighing this question, one should read George H. Bissel's Story, James M. Townsend's Story, and Drake's Account with the Seneca Oil Company as found in the company Ledger.

Some parties effect to doubt that Col. Drake was really the Pioneer of Oil Development, and accordingly throw cold water on the testimonial being raised on his behalf. It is claimed that he was merely an employee of an Oil Company and acted under instructions. Now, as this testimonial is undertaken not so much as a charity for the relief of Col. Drake misfortunes as an individual, but as a mark of respect and in honor of his discovery, all doubts of this kind should be met, and objections silenced. Happily, there are living witnesses and existing documents to vindicate Col. Drake's claim in this regard, and we will state the case as briefly as may be.

So far as organizing the first company is concerned, we believe that Dr. Brewer and his friend, Mr. Crosby took the initative, being aided in that proceeding by their friends Eveleth and Bissell of New York. That was called, if we are correctly informed, the Rock Oil Co., and the next company that sprung up was the Seneca Oil Co., of New Haven, which took a lease from the former. Dr. Brewer was then residing here, being one of the firm of Brewer, Watson & Co., extensively engaged in the mercantile and lumbering business. It was on the Watson flats, near their saw mills, that the Seneca oil was found saturating the soil, and collected in vats and depressions of the surface. Nothing had been done by either company in the way of development till Col. Drake came on the scene, as an agent of the latter Co. The common, and even scientific notion was, that the oil run down from the hill sides to the valley. Col. Drake dissented, and held that it was a deposit in the rocks below and was to be reached by boring and pumping. And he proceeded on this hint. He visited the Salt wells at Tarentum to improve his knowledge of the business. It is an old story of the delays and difficulties he met with in his undertaking. His driving pipe was made to his order by Liddell & Marsh, of Erie, Pa. It was 3-inch bore; the bands to connect the pipe were put over the joints loosely, a hole drilled through the band into the pipe, and a rivet driven in to prevent the band from slipping on the joint. It was slow, discouraging and expensive work putting down that first oil well—over a years time from first to last. Col. Drake was voted a visionary and a fool. The company neither paid the well's debts nor advanced for expenses, and Col. Drake "played it alone." And the well was only finished by the individual credit of Col. Drake, and loans and endorsements, from well known citizens of Titusville. The account books of one of our city merchants show a credit of over a year's standing to the employees of this company. After oil was struck, when the well was a success, the New Haven company sent on their representation to settle but not before. This is only an outline of a story which has many interesting details, but it suffices to establish the fact—that Col. Drake was the first to conceive the idea, and to execute the work of oil development—that in the language of the testimonial, he was

The man who first bored for oil, and by his genius and indomitable perseverence, produced the cheapest illuminator of the age, multiplying the wealth of the world, adding to the list of human industries, and contributing to the comfort and happiness of mankind.

93. From Colonel E. L. Drake

The following letter, appearing in the *Titusville Daily Courier,* February 11, 1871, was written by Colonel E. L. Drake to a friend in Oil City. It indicates the distressing financial condition of Drake.

I am confined to the house now, as we have about sixteen inches of snow, and the weather has been very cold for this locality. I have coal enough to last this week out.

My wife has just told me not to worry, as a young lady in the neighborhood wants a dress made, and she has taken the job for four dollars, and this will buy us half a ton of coal. I hope you and yours may never be obliged to figure quite so close to keep from freezing.

If my wife had a sewing machine she could get along much better; but with nothing but her fingers and a family to sew for, as well as house work to do, she works many an hour when she should be sleeping.

94. The Drake Relief Fund

The movement to raise money to aid Colonel Drake ended in the spring of 1871 and the money was forwarded. The total amount raised was extremely disappointing. The following article is taken from the *Titusville Morning Herald,* March 10, 1871.

The Drake Fund—The subscribers to the Drake Relief Fund will be interested to learn that the account is closed, and a draft will to-day be sent to Colonel Drake and family for the amount realized. The whole amount of the subscriptions exceeded $5,000. Of this sum there has been collected $4,833.53. There have been occasional remittances to Colonel Drake, amounting in all to $1,088.40. Balance on hand, to be forwarded to-day $3,745.10. The subscriptions remaining unpaid are less than $300. It will be seen that the sum realized is sufficient to purchase a desirable home for Colonel Drake's family, or as a judicious business investment will afford them a comfortable subsistence.

95. E. L. Drake to J. M. McCarthy

E. L. Drake bought stock on the advice of James M. Townsend of New Haven in the Seneca Oil Company, which leased the Titusville oil property in 1858; he regrets his purchase of stock. Drake did not organize the Seneca Oil Company, but claims to have invented the driving pipe. Brewer Papers, Drake Museum.

Bethlehem June 28th/72

J. M. McCarthy Esq.

Dr Sir

Yours of the 24th is recd and in reply will state that in the winter of /56 or spring of 57 I don't know which I bot of Jas. M. Townsend some stock of Pen R O Co. I paid either $100 or $200 I don't know which, my impression is $200. But how much I cannot tell. I never had a Certificate don't know as there was any. I bot by Townsend's advice without investigating, and a few months afterwards when I did try to investigate I made up my mind my friend had pulled me in, in trying to get out himself and thought no more of it. If Bissell says I bot one 48th of the Cos stock I am glad to know how much I had am sorry to learn that I made such a fool of myself. All the members of the Seneca Oil Co were also members of the P R O Co and the members that were not in the Seneca Co wanted to get into the Oil business so they proposed to give up their royalty and we surrender our leases, run a line through the the centre of the 105 acres divide the property each giving a deed to the other and quit. My stock was with the Seneca—and went where the woodbine twineth with that Co. But I don't know what that has to do with Bissell. I never claimed to have got up the P R O Co, but I do claim that that Co did not bore a well or do anything else to devellope the Oil interests of this country and I claim that I did invent the driving Pipe & drive it and without that they could not bore on bottom lands when the earth is full of water. And I claim to have bored the first well that ever was bored for Protrelum in America and can show the well, and if I had not done it, it would not have been to this day.

Yours &c

E. L. Drake

96. DRAKE BECOMES A PENSIONER OF THE COMMONWEALTH OF PENNSYLVANIA

As a result of the following legislation, Colonel E. L. Drake became a pensioner of the Commonwealth of Pennsylvania on April 8, 1873. *Laws of the General Assembly of Pennsylvania, Passed at the Session of 1873, In the Ninety-seventh Year of Independence,* Harrisburg, Benjamin Singerly, 1873, pp. 557-558.

No. 583

An Act

To grant an annuity for the relief of E. L. Drake and wife

Whereas, E. L. Drake, a citizen of this commonwealth, did in the years one thousand eight hundred and fifty-eight, and one thousand eight hundred and fifty-nine, search for and discover large quantities of petroleum in this commonwealth, which discovery has greatly stimulated various industries, and has also added directly to the revenues of the commonwealth more than one million dollars since the discovery, and which also continues to yield directly to the said revenues a large sum annually:

And Whereas, The said E. L. Drake expended large sums of money in prosecuting his search for petroleum, and by reason of disaster to his fortune and unfortunate loss of health in the labor and exposure of the said search for petroleum he was not able to derive any benefit from his discovery, but is now in indigent circumstances and helpless from disease and therefore unable to provide for the wants of his family, consisting of a wife and four children; now, therefore

Section 1. Be it enacted, etc., That an annuity of fifteen hundred dollars be and the same is hereby granted to the said E. L. Drake for and during the time of his natural life; and that from and after the death of the said Drake, in case his wife shall survive him, the sum of fifteen hundred dollars per annum shall be paid to her so long as she shall remain his widow.

Section 2. That the treasurer of the commonwealth be and he is hereby authorized and directed to pay to the said E. L. Drake, or to his order, or to his widow, or her order, in the event of the death of the said Drake, in equal semi-annual payments, the above-mentioned sum, the first semi-annual payment to be made on the thirtieth day of May, Anno Domini one thousand eight hundred and seventy-three.

Approved the 8th day of April, A.D. 1873.

J. F. Hartranft

97. MRS. E. L. DRAKE TO JOHN A. MATHER

The folloing letter, appearing in the *Titusville Morning Herald,* May 10, 1879, was written by Mrs. E. L. Drake to John A. Mather of Titusville, the pioneer oil region photographer. It gives some insight into Colonel Drake's physical condition.

Bethlehem, May 1, 1879

J. A. Mather:

Dear Sir—We received your letter also the package of photos, which accept our sincere thanks. We are much pleased with them and regret giving you so much trouble in working them up. We had expected to pay you for them. I have not yet showed them to the parties who wanted them. My dear husband has so much changed the past two years I hardly think you would recognize him; he is quite gray and much stouter. Sitting all the time. His limbs are withered. He has been very feeble the past two months, and suffers beyond endurance. With all, he bears it very patiently and longs for death to release him from this dreadful pain. He is a sincere, devoted Christian, and looks forward to rest beyond the grave with pleasure. The people are devotedly kind to him.

He says, "tell Mather seeing his picture was like shaking hands with an old friend." Although he thinks you changed in your looks. Many thanks for it, also thanks for Titusville news. It has lost one of its land marks in Joseph Chase. I feel interested in all that is going on there, although I don't know much about it of late years. With kind regards from your old friends.

Mr. and Mrs. E. L. Drake

98. MRS. E. L. DRAKE TO H. C. BLOSS

The following letter, appearing in the *Titusville Morning Herald,* March 19, 1880, was written by Mrs. E. L. Drake to the Editor, H. C. Bloss. The physical suffering and destitute condition of Drake is more fully revealed. He died in November, 1880.

Bethlehem, March 16

H. C. Bloss:

Dear Sir—Yours of March 9th, I have this day received. The paragraph you allude to was not enclosed in the letter. We came to Bethlehem in 1871 by the advice of our doctor, who thought it would benefit him to live among the mountains. For a few months it seemed to do him good. Then he had a very sick spell, after which the muscular neuralgia came on more severe and has continued up to the present time, producing partial paralysis, first in his feet, then gradually going up his body, until he can scarcely use his hands. He has not walked in seven years, nor used his hands to write in two years. He has suffered beyond endurance the most severe pain. Anyone here will tell you they never witnessed such suffering as he has passed through these many years. He has been entirely an invalid, requiring one person to take care of him, for many diseases have come upon him by his long suffering. We are surrounded by the kindest people living; they are warm-hearted sympathisers and have left nothing undone for Mr. Drake's comfort. As long as he was able to be put into a carriage he had one at his command. After that they had a walking crutch made on the most improved plan, but for the last two years, he has been lifted from his bed into his reclining chair. The last six weeks he has been confined entirely to his bed, with only slight hopes of his ever being any better. He is a patient sufferer, taking it as coming from the Lord, who knoweth what is best. He is always bright and cheerful his head has been perfectly clear and free from pain and suffering for want of sleep. As he has so many sleepless nights, he has taken an interest (until the past few weeks) in all the new developments of the age. In Titusville we both cherish a deep interest. We hear nothing of it the past few years, but ever remember the exceeding kindness of the good people during our stay in their midst, and of their pecuniary help in our distress a few years since. I trust not one contributor will ever see the need of it as we did at that time. It is very gratifying to me to hear of the Herald's movement in regard to a suitable monument. Nothing would give me and my children a greater pleasure than that his name should be perpetuated in that region. We would have liked very much to have subscribed for the Herald these many years, but I find with the strictest economy very hard to make our annuity reach from year to year. With constant sickness, Doctors and nurses bills amount up fast. I was sick two years from over exertion as I was then keeping boarders. The past year I have been quite well and able to do a large share of the nursing of my dear husband. He joins me in kind regards to yourself and the old friends of Titusville. Please address any future communication to Bethlehem. Although we live in South B. It is more convenient to see our mail at Bethlehem. That is the reason your letter did not reach me sooner. Very respectfully,

Mrs. E. L. Drake

PART V

CONTEMPORARY ACCOUNTS OF THE OIL REGION, 1859-1872

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The successful completion of the Drake well started a wild rush to Oil Creek to buy or lease land and drill a well. Each newly-completed well in 1860—the Barnsdall, Crossley, and Williams—intensified the excitement, but they were nothing compared to the flowing wells beginning in 1861—the Empire, Phillips, Woodford, Sherman—with a production varying from 1,500 to 4,000 barrels a day. This was more oil than anyone had ever seen. It was bewildering.

While the wells along Oil Creek were producing large quantities of petroleum, strenuous efforts were made to market it at home and abroad. Drake had discovered a rich supply of oil, and for a moment it seemed to be of little value. Within a short time, however, petroleum's fame as an illuminant spread throughout the world and a market quickly developed.

The birth of the new industry—the petroleum industry—meant the establishment of refineries, the appearance of thousands of teamsters, the extension of railroads into the oil region, the spread of production up and down the Allegheny River and into the hilly region away from Oil Creek, the rise of Pittsburgh as an oil center, new inventions for the use of oil, the organization of joint stock companies, the establishment of stock exchanges and oil exchanges, experiments with petroleum as fuel for ships and locomotives, the appearance of notorious characters in the oil region, the rise of mushroom oil towns, the construction of pipe lines, the writing of popular songs about petroleum, the establishment of machine shops, the rise of a "petroleum aristocracy" and many other significant things during the period 1859-1872.

99. OIL EXCITEMENT AT TITUSVILLE IN 1859

The following excerpt from the *Meadville Free Press,* published in *The Venango Spectator,* November 30, 1859, indicates the excitement created by Drake's successful completion of his well

The quantity of oil seems to be unlimited, and is attracting the attention of capitalists from all parts of the Union. We understand that the streets in Titusville are daily crowded by "oil-seekers" from New York, Philadelphia, St. Louis, New Orleans, etc., etc., all anxious to get a chance to "boro."

100. The Barnsdall and the Crossley Wells

In June, 1860, Thomas A. Gale of Riceville, Pennsylvania, published a pamphlet entitled *The Wonder of the Nineteenth Century! Rock Oil in Pennsylvania and Elsewhere,* which is probably the first printed account of any size on the earliest oil developments after the completion of Drake's well. In this pamphlet, Gale describes the second and third well completed, the Barnsdall and the Crossley. The production of these wells was very small compared to later wells but, at the moment, they astonished the spectators and stimulated the leasing or purchasing of land and drilling.

When the news of the quantities of oil which were obtained at Titusville last winter spread abroad, many pronounced it the greatest mystery of the age. Not only so; they hastened to see for themselves, if it could be that natural oil existed in the bowls of the earth, and flowed up spontaneously in prodigious quantities when an orifice was made of more or less depth. The writer shared in this desire to know for himself whether the statement was a fixed fact, and the region of his home a veritable California. He found the half was not told. Or rather, admiration and wonder had not been excited half so high by the hearing of the ear, as they were by the sight of the eye.

When he visited the Barnsdall well, about the first of March—some weeks after the vein was opened—the pump threw up a patent pail full of oil and water in 4 minutes by the watch. The pail held about 10 quarts. Of these 2 were water, leaving 8 quarts of oil—a gallon for 2 minutes or 18 barrels in 24 hours. This under two disadvantages; first, the pump at that time had no gas-tube. The consequence was, the gas in it prevented, a portion of the time, the valves from working. The other disadvantage lay in the little depth the pump reached—not half way down the well.

Previously, the issue of the vein consisted of less water, relatively; and for days after it was tapped, pure oil rushed up and overflowed the top of the tube, to the amount, as was judged of 10 barrels a day. The Crossley fountain then being unsealed, and Drake's having become an old story, Barnsdall's was the lion of the valley.

One is almost constrained, from his intuitive notion of the natural world, to suspect such a story is a *whopper;* and that the man who talks in this manner of oil flowing up, has been drinking poor whiskey. But good vouchers are at hand.

The following extract is from a late number of the Titusville Gazette:

"In company with others, we visited the Barnsdall well the other day, and found it better than ever before. The amount of oil produced is truly astonishing. When the pump is stopped, the pure oil will gush up, to the height of 7 or 8 feet above the top of the pipe. It was not only astonishing, but to a great degree amusing. A ladder was provided for the party to go up and see the oil spout out of the pipe. When we got up on the little platform, it was coming up gently enough. But soon it commenced throwing up the greasy and odorous substance far above our heads, and sprinkling us in a manner which was death to white vests and black pants. We were amused at one gentleman, who did not appear to like that kind of a bath, and undertook to get away by going down the ladder. He started as though he would go down a pair of stairs, but as ill luck would have it, he fell through, between the rounds and barked himself considerably."

The following extract pictures things to life, in relation to another well. "Sloan & Crossley of Titusville, on Monday of last week [Jamestown, N. Y., *Journal,* March 28, 1860] struck on the steep bank of the creek at 124 feet depth, a large mine of oil yielding ever since, *fifteen quarts per minute.* A patent pail of oil and water is given off every 6 seconds, and the proportion of oil is three pints. This statement is from well known and reliable citizens who were on the ground and tallied the yield by the watch. The greatest excitement exists in that region, and fortunes are made in a few minutes by sale or lease of lands. A Mr. H—— bought 300 acres for $30 per acre, and then leased it for $300 per acre, and ¼ of the oil found. Wells are sinking in every direction and strangers are flocking in from all parts of the country."

Three pints in 6 seconds amount to 75 barrels in 24 hours. A splendid thing is the Crossley well! A diamond of the first water! Enough of itself to silence the cry of humbug; to create a sensation among rival interests; to inspire hope in many toiling for the subterranean treasure, and to make every son of Pennsylvania rejoice in the good Providence that has enriched the state, not only with vast mines of iron and coal, but also with *rivers of oil!*

The Crossley well eclipsed its predecessors; the gaping crowds who had been struck with wonder at the others, now flocked the boat, paid their dime and were landed across the creek, to feast their admiration upon this new object.

101. The Williams Well, "The Wonder of the Woods"

Of the four earliest wells completed, the Williams well was the most spectacular. It was located in the wilderness about two hundred feet from the Barnsdall well. On June 23, the driller struck a vein of oil but the owners decided to drill deeper. The following account of the results was written by the Editor of *The Titusville Gazette* and appeared in the *Crawford Journal* on September 4, 1860.

We were sitting in our office after nine o'clock last evening when several individuals called on us to make statements of a wonderful excitement at the Williams' Oil Well. They attempted to describe it, but language proved inadequate.

The whole village was in a blaze of excitement. This well, henceforth to be known as the FOUNTAIN WELL (so we are informed), is owned by a Company of men living in Warren, the names known to us are Messrs. Williams, Tanner and Watson, as we have before reported, has for some time, by the force of gas alone, been throwing up from ten to twelve barrels of oil per day. The Company have for some days been making preparations for pumping. On Tuesday they commenced boring deeper to form a chamber below the oil vein, for sediment. In drilling they struck two or three small veins before they had got two feet, but at two feet two inches drilling, making the well in all 145 feet deep, they opened a vein which is *the* wonder of the oil region.

After hearing the statements of our friends, we could not, late as it was, deny ourselves the satisfaction of witnessing the wonder itself. On our way to the well we met crowds returning from the well, all greatly excited. On reaching the well we were astonished beyond measure. The coolest nerve could not witness the scene without excitement.

In three hours, thirty barrels of oil had been taken off, and large quantities wasted over the ground, several men being engaged in dipping off with pails and barreling the oil. Ten barrels an hour were taken off during all the night, and immense quantities run over the earth vat along the ground.

We have no language at our command by which to convey to the minds of our readers any adequate idea of the agitated state at the time we saw it. We are told it continues the same.

The bore of the pipe which the oil and gas escape is five inches in diameter. The gas from below, from a depth ot 145 feet was forcing up immense quantities of oil in a fearful manner and attended with a noise that was terrifying at times, in pulse like throes, the gas threw up a stream of oil the full size of the pipe to the height of three feet above its top, and continued a boiling, tossing and surging commotion for a minute throwing out, seemingly, a half barrel of oil at a single toss of the gas. During such a discharge the vat surrounding the pipe would become filled considerably above the pipe, so that when the gas subsided for a few seconds, the oil rushed back down the pipe with a hollow, gurgling sound, so much resembling the struggle and suffocating breathings of a dying man, as to make one feel as though the earth were a huge giant seized with the pains of death and in its spasmodic efforts to retain a hold on life was throwing all nature into convulsions. During the upheavings of the gas it seemed as if the very bowels of the earth were being all torn out and her sides must soon collapse. At times the unearthly sounds, and the seemingly struggling efforts of nature, imperceptibly drew one almost to sympathize with earth as though it were animate.

102. The Oil Region in 1860

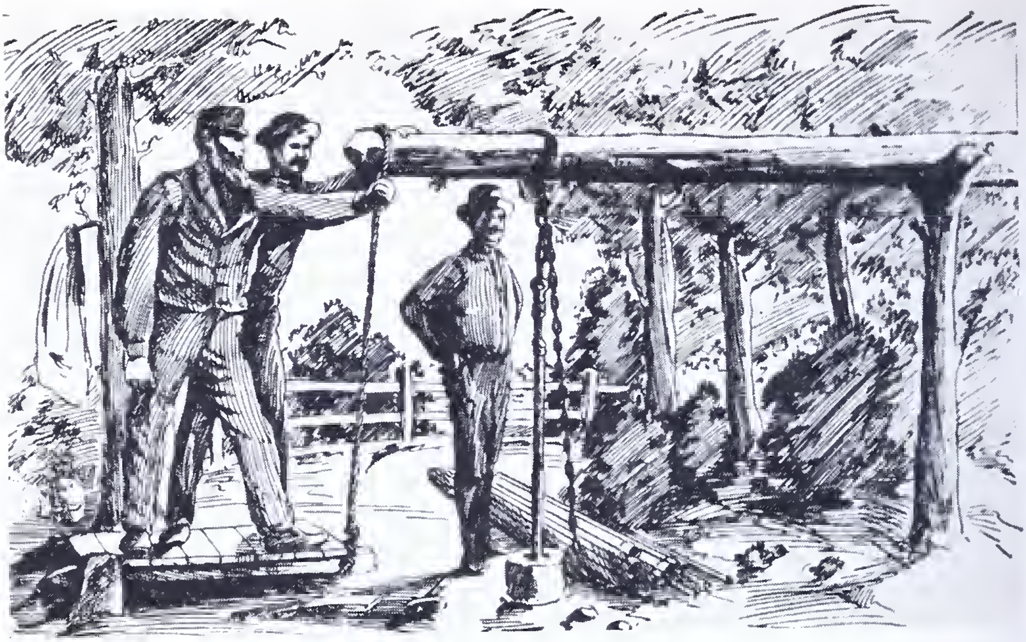
Simultaneously with the drilling of the Barnsdall well, Brewer, Watson & Company started drilling on the Hamilton McClintock farm at the lower end of Oil Creek, and in November, 1859, they struck oil. Other wells were drilled and by the summer of 1860, a village, McClintockville, had come into existence. An unidentified visitor to the oil region in September, 1860, made the following observations upon the activity at the McClintock farm, the early method of drilling, the need for barrels, the cost of drilling, and other interesting items. This account was published in Edmund Morris' *Derrick and Drill, or an Insight Into the Discovery, Development, and Present Condition and Future Prospects of Petroleum in New York, Pennsylvania, Ohio, and West Virginia,* James Miller, New York, 1865, pp. 34-39.

Although Drake's well was opened in August, 1859, the *fever* did not reach its height till the present summer, and we doubt very much whether it has now attained it. Indeed, at no former time have so many adventurers been flocking into this promised land, and every day several new wells are commenced. Those who have bored, and are at work, are perfectly sanguine, declaring that there is no investment in the world equal to it in yielding a speedy and handsome return. The only material expense is the purchase or lease of a site, and of course this is daily increasing in the most favorable localities. Efforts have proved successful at considerable distances apart, good productive wells being in operation thirty miles from each other.

From Titusville to the mouth of Oil Creek the road is very hilly, and cut up by the heavy wagons which pass daily over it with barrels of oil. In winter this road will be impassible unless much improved. What is called the centre of the oil region is at McClintocksville, twelve miles from Titusville, and nine from Franklin. Hamilton McClintock, the fortunate possessor of several hundred acres of land, has suddenly become worth his hundred thousand dollars—and his daughters from milkmaids and country lassies, are now heiresses of fortunes. He gets a certain proportion of all the oil derived from the wells on his land, and of course he is at no expense. His house, the only one for miles before this excitement, is the stopping place for travellers and visitors, and every night it is crammed. Each room has four or five beds, and mattresses are spread over the loft floors. Mr. McClintock is building a new house, of ample dimensions, however, in which to entertain company. The charges are certainly moderate, being only three dollars a week for board.

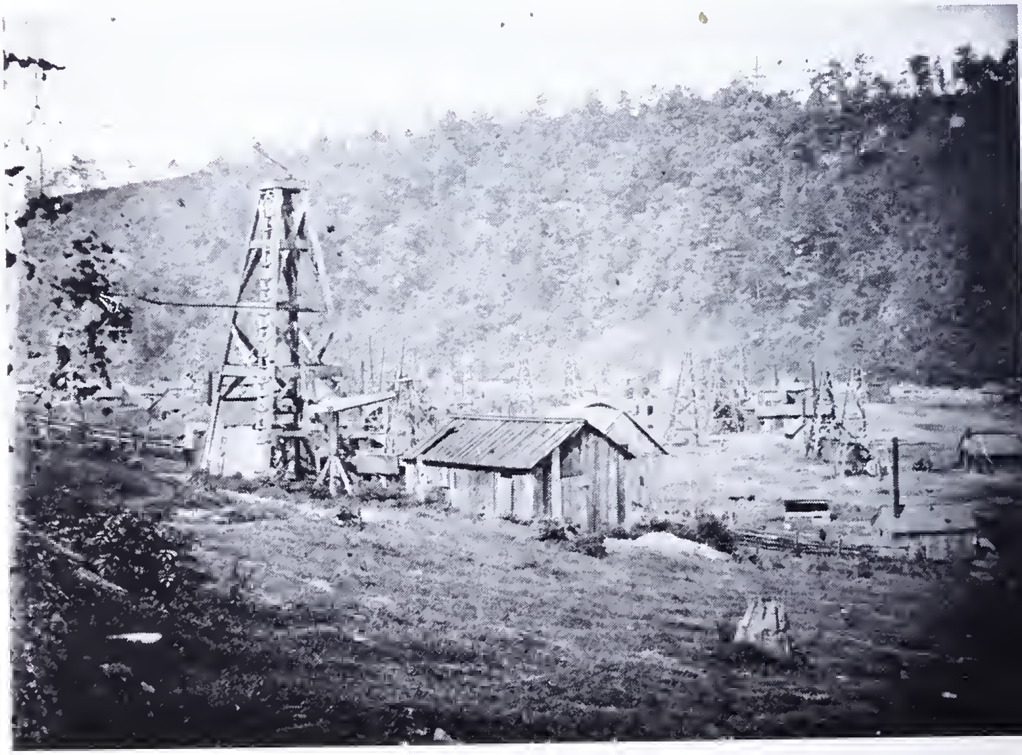
This place has the appearance of a California ranch or settlement. A hundred or more rough board shanties have been erected, and on every side you will see carpenters busy with barns, sheds, and houses of every description—the idea predominant, however, to do nothing *permanent.* There must be a lack of faith somewhere in this *oil* business, or people would build more enduring structures, and those better adapted for the winter blasts. All are making haste to be rich, and the whole affair is so novel, and startling, and bewildering, that we cannot blame the oil-seekers much for their hurry to get into the ground, or to strike a vein. We should think, if the supply of oil continues, there must be a flourishing town here, and that mechanics of all kind would find employment. What is said to be wanted is a good store—there is none now there. Laborers receive from twenty-six to thirty dollars per month. From McClintock's to Franklin one is never out of sight of the *peculiar institution* of this region, viz., the *derrick,* and in the latter town every man almost has one in his garden. The Hoover well, a mile south of Franklin, on the Alleghany, is one of the best yet opened, and this encourages everybody to bore away.

The apparatus for boring is very simple. A derrick is erected, consisting of four timbers from thirty to forty feet, connected with framing ten feet square at the base, and about four or five at the top. Most of these are boarded on the outside, but many are open, except at the bottom. At the top is a pulley over which a stout rope runs, one end of which is attached to the drill and the other to a windlass. The drill consists of a steel edge or point attached to a long iron bar



KICKING DOWN A WELL

Many of the early wells along Oil Creek were "kicked down" or drilled by the spring-pole method. This illustrates one method of "kicking down" a well. Taken from McLaurin's, *Sketches in Crude-Oil.*



THE EMPIRE WELL

The Empire Well, drilled in September, 1861, was the first great flowing well on Oil Creek. It began flowing at the rate of 3,000 barrels a day. Mather Collection, Drake Museum.

or rod of three inches diameter. This bar is firmly screwed to another, in which there is a flat link or "jar," as it is termed. There are several of these in one drill, in order to afford play for the rigid iron when it strikes the solid rock. The rope attached to the drill is then fastened firmly to the end of a long spring pole. This pole is secured at the outer end, some distance from the derrick. A springing motion is then given to the smaller end of the pole from which the drill hangs, by various expedients. The simplest is by having a strap or rope suspended from it, with a step-piece at the bottom, in which two men each place a foot. By kicking outward and downward a little, the pole comes down, and the natural swing throws it back to its original position, thus moving the drill up and down a short distance. A man stands by the drill, constantly turning it, to vary the side on which it strikes, and to produce a round hole.

Some have a hinged platform connected with the spring-pole, and two men tramp on this all day. As the hole is made, the drill is lowered, and at frequent intervals it is elevated by the derrick entirely out of the opening, and what is called a sand-pump is lowered to bring out the water, &c. The contents of this vessel are scrutinized closely for indications of oil or gas, and if not satisfactory the drill is again resorted to. The depth at which oil is found varies from 30 feet to 400 feet, the average at McClintock's being 150 feet.

Steam-power is rapidly being introduced; all who are pumping oil making use of engines of about five-horse power, and a few are drilling by this means. Occasionally horses are used, but at present it appears that almost every man wants to put his own foot into it, and *jump himself* rich. It is certainly an innocent occupation; and, in these days of physical development, why should not our young men develop their *understandings* by so healthful and inspiring an employment? Alas! that poor Mother Earth should be so treated, however, and be so grievously *bored*. There are now at least *two thousand* wells being sunk, or in operation. Where pumps are in operation, five inch cast-iron pipe is sunk into the well, and the oil drawn up is conveyed on rude troughs or pipes to vats several hundred feet distant. This is done for safety, as the oil in its natural state is highly inflammable, and several establishments have been burned down by an accidental spark. We noticed particularly that cigars and pipes were at a discount; indeed we did not see one, as every shed has its sign of "No smoking allowed here." Fire has to be handled with the utmost caution.

Vats for receiving the oil and separating the water are erected according to the yield of the wells; barrels are filled as fast as they can be obtained, and sent off immediately by wagon to Union, thence by the Sunbury and Erie railroad to Erie and the New York and Erie railroad. All the oil yet obtained, with slight exceptions, has been bought by a firm in Jersey City, who have controlled the market. The opening of new wells daily, however, and the increase of the trade, will undoubtedly cause the oil men to seek other channels of communication. Some is now sent by the river to Pittsburgh. Some enterprising citizens of Meadville have formed a company, and are about to erect a refinery in that place. They now have a small one in operation with successful results.

Barrels, barrels, are the great want now, and much is lost daily by the scarcity of this article. We should think a good establishment of this kind would pay large profits, as we only saw one in Titusville. The barrels are sold at $2 apiece, and there is already a demand for a thousand a day. The Williams well, owned by Tanner and Watson, runs from one hundred to one hundred and twenty barrels of oil every twenty-four hours. On Sunday work is suspended, and on Mondays the well yields water only. It requires almost a day's pumping to regain the condition of Saturday as to the flow of oil. This well is one hundred and fifty feet deep. It runs sixty-eight barrels itself.

The estimates given for boring, &c., are about as follows: Tools, $75; derrick, $20; digging above the rock, at $1 per foot, 50 feet, $50; boring, $1.50 per foot for 50 feet, and $2.12½ for 100 feet; total for boring, $282.50; pump, $125; total, $557.50. This is for a well of 200 feet. But to this must be added the expense of piping, repairs, incidentals, &c., making at least $1,000. Then the cost of the lease of the land, and the risk run of boring perhaps 200 feet, and getting nothing, must be considered. The total expenses of a good well are calculated at $5 a day, or including barrels, freight, &c., to New York, $30; and if 10 barrels are obtained at 40 cents a gallon, the receipts would be $160 in 24 hours.

Doubtless there will be more failures than successes, for so many rush into the thing without counting the cost, with inexperienced workmen and heavy outlays, with no calculation for accidents. Good advice is given by a Titusville paper, that no one should expend money in this enterprise without being able and willing to lose every dollar invested.

103. OIL EXCITEMENT AT TIDIOUTE

Within a short time after the completion of the Drake Well, there was a wild rush to lease or buy land at any price and drill a well. The excitement was by no means confined to Oil Creek; in and around Franklin, capitalists from Pittsburgh and other places purchased land or leased sites and prepared to drill. Up the Allegheny River around Tidioute, the excitement was soon at fever heat. The following account, written by the Editor of *The Warren Mail* on August 18, 1860, describes conditions at Tidioute.

About the time our paper was out last week, we had incredible news from the oil wells at Tidioute. Last Tuesday we went down to learn the facts. We have just got back. We shall ask you to believe that we are neither drunk nor crazy, though we shall hardly expect strangers to oil diggings to believe all we tell you.

Let us begin by saying that the excitement is at fever heat, except among the inhabitants. Tidioute is overrun with strangers, many of them from Warren. Every stranger is at least half crazy. They have three taverns, and every tavern has three times as many guests as it can comfortably lodge. If you understand old times in rafting, at the Mansion House here, and are good at "making a rush," you may get down at the first or second table; otherwise not. If you happen to have a friend outside you may get good lodging, as we did. Otherwise you can't get a chance to lay on the floor or hang up in the bar-room, unless you will hang two on a peg! The landlords do all they can, but with two or three hundred extra in town every day, what can they do for all! One naturally seeks wealth for its ease and comfort; but when you see a man who wouldn't sell for half a millon, taking the soft side of a floor for a bed, or trying three times in vain to get down to the table, while a poor printer or digger who happens to understand the ropes gets comfortably fed and slept, you are apt to inquire what's the use of toiling to be rich? So it is in Republican Tidioute. And so we suspect it is the world over. The money-bugs don't enjoy life half as well as we other-bugs think they do.

In the vicinity of Tidioute they are at work on about 50 wells, with others beginning every day. The centre of the excitement is on the farm of W. S. Cohell, directly across the river from the village, in Limestone township. He owns about 130 acres, having some 140 rods on the river. He has owned it several years, and though a hard working, energetic man, he has hardly been in easy circumstances. But the tide has suddenly turned, and we suppose he could to-day sell out for $200,000 if he would! Good for Cohell! We hope he will enjoy his wealth. His ground is all leased, some wells giving him one-half and some one-fourth of the oil. We give the depth of the wells as we get them, with the names of the parties, though we presume we have not all the owners, or the firm names as they are. There are many men unknown in a well if it proves a failure. If it is a "big thing" they are all, like their wealth, ready to come out of their holes.

Next below is the famous "Hequembourg" or "Russell" well—these wells take their names from those who start or operate there the most. It is owned thus. Cohell has one fourth, Orris Hall of Warren and R. J. Brown, of Perry, Pa., another fourth, Rev. C. L. Hequembourg, Dr. G. A. Irvine, Wm. D. Brown, John Sill and R. K. Russell all of Warren, having the other half, or a tenth interest each. This well is 124 feet deep. At first it looked like nothing extra, not much gas or oil, though it was called a good show. When they put in a hand pump last week to try it, all at once it broke out like a torrent, throwing out 60 or 70 barrels an hour! This was the story that we went down to see about.

When we got there it was plugged up tight. Kim Russell had it in charge. They had sent off 50 barrels and 25 or 30 more lay there in the river. We tried to get Kim to stir the animal up so it would perform again for our especial benefit. But he wouldn't—said he couldn't hold it—it would spoil his best clothes and squirt over all creation and the like. So we and fifty other anxious seekers for knowledge and oil under difficulties had to pocket our wrath and slyly guess that there was some humbug about it. But the next day down came John Sill. We told him our fix—must go home after dinner—boys must have copy—we wanted an item and so far must report the thing a failure— instead of a barrel a minute it hadn't run a drop. He always likes to help the printer and "say he to Kim says he, Kim let 'er run." Says Kim says he, just as you say John, but I shan't promise what she'll do." So he got his old clothes on, like a candidate for Recorder, and over the river we went. Kim was evidently timid. He was more than half afraid "She wouldn't start," but to keep up a show of confidence, he agreed to give us $1,000 if she didn't or $500 if she did! At first he chiseled out the big plug. Not a drop came. He put his ear to the pipe and said he "could hear a rumbling in her Bowels." Then they put in the hand pump. Kim stood ready with a big plug and a half inch hole through it. Young Cohell gave the pump three or four pulls when the oil began to boil up two or three feet rising higher every second. Out they jerked the pump and in Kim drove the plug, the oil in the mean time squirting all over him from end to end and some twelve feet high through the half inch hole. Kim pitched for the river to wash the oil out of his eyes. He was greased the slickest of any candidate we ever heard of. Then they put a pail over the stream forcing the oil down into the barrel and through the pipe into two large cisterns or tubs, said to hold 15 barrels each. One of these was filled and the other was more than half full when we had to leave. We staid about three quarters of an hour. It must have run a barrel in less than three minutes, through only a half inch auger hole! We have no doubt it would have run a barrel in less than one minute through the whole bigness of the pipe! What is singular, it is all clear oil—there is hardly a drop of water in a gallon. They say it will run over thru about 25 or 30 barrels every time it flows. Whether by pumping again in an hour it would run over again has not yet been tried. Workmen were busy making a large vat, when it could be tested. Like all other wells it probably throws off the gas in a few days of self pumping and run no more without help. At any rate it must be the biggest sort of a well—quite a fortune for its lucky owners.

Meanwhile do not imagine that everybody is going to succeed in finding oil. It is a lottery in which some draw prizes, but the larger part blanks. Some lucky ones will make a fortune, but many others will use up the season in anxiety and hard work and sink what money they had at the start.

No man should invest a dollar unless he is prepared to look upon his investment as so much thrown away. Then if he wins it will be a clear gain which he can the better enjoy.

104. The Rouse Fire

The first large flowing well to startle the inhabitants of the oil region was located on John Buchanan's farm at the lower end of Oil Creek. Henry R. Rouse of Warren, Pennsylvania, with his partners had leased the farm in 1859. Little and Merrick, lessees of a tract started drilling on the farm in the spring of 1861. About sunset on April 17, 1861, the driller struck not only a heavy vein of oil but a huge gas pocket, and the well commenced flowing at the astounding rate of about 3,000 barrels a day. Within a short time, a terrific explosion took place, setting fire to the well, buildings, and those people who had assembled to view the giant gusher. It was the earliest and greatest of oil-well fires. The following account of the fire, related by George H. Dimick, confidential clerk to Mr. Rouse, was printed in J. T. Henry, *The Early and Later History of Petroleum with Authentic Facts in Regard to Its Development in Western Pennsylvania,* Jas. B. Rodgers Company, Philadelphia, 1873, pp. 337-340.

Just after supper on the evening of April 17th, 1861, Mr. Rouse, Mr. Perry, Mr. Ruel and myself and others were in the sitting-room of Anthony's Hotel (now Cherry Run Hotel) discussing the fall of Fort Sumter, (the nearest railroad point at that time being Union Mills and Garland, and news from the outside world requiring from two to three days to reach us) when a laborer on the fatal well hurried into the room to say that a monstrous vein of oil had been struck and barrels were wanted to preserve it.

All ran to the well with the exception of myself, and I not seeing the man who attended to the distribution of barrels, started in the opposite direction for teams to haul the necessary packages. I had completed my errand and was on a full run for the well with less than twenty rods to make, when an explosion occured which nearly took me from my feet. On the instant an acre of ground with two wells and their tankage, a barn and a large number of barrels of oil were in flames, and from the circumference of this circle of fire could be seen the unfortunate lookers-on of a moment before, rushing out, enveloped in a sheet of flame which extended far above their heads, and which was fed by the oil thrown upon their clothing by the explosion. Scenes followed each other, and occured simultaneously, beggaring both description and imagination. One poor wretch struggled out of the fire, believing himself to be in the hands of the evil one. His charred and naked figure was speedily placed in a blanket, and he was borne from the place. He lamented his supposed arrival in ———, in piercing tones of agony, which proceeded from lips burned to a cinder, and hence powerless to give proper accent to his language. He bemoaned his own fate, and calling the names of various friends warned them of his own terrible punishment. Death ensued in four hours.

Above the well and against the foot of the hill had been rolled two long tiers of barrels. One of the victims it would seem had been standing on these barrels near the well when the explosion occurred; for I first discovered him running over them away from the well. He had hardly reached the outer edge of the field of fire, when coming to a vacant space in the tier of barrels from which two or three had been taken, he fell into the vacancy, and there uttering heart-rendering shrieks, burned to death with scarcely a dozen feet of impassable heated air between him and his friends.

So numerous were the victims of this fire and so conspicuous, as they rushed out, enveloped in flame, that it would not be exaggeration to compare them to a rapid succession of shots from an immense Roman candle.

Before speaking of Rouse, a word about the well. It had produced oil for some time from the first sand rock, but failing there, was being drilled deeper in search of another oil-bearing formation. Its location was near the upper line of the John Buchanan farm on the east side of Oil Creek, and back at the junction of the bottom land, with a steep hill. A few rods up the hill, and a little south of the well issued a spring, which had formed a small ravine in running down, and created something of a swamp at the bottom and around the well. The well must have commenced flowing (as measurements of other later wells would prove), at the rate of three thousand barrels per day, and although but eighteen or twenty minutes of flowing proceeded the explosion yet the little swamp was covered deep with oil, excepting several small elevations on which the astonished spectators were standing when the shock occured. Had this catastrophe happened even ten minutes later it is safe to say its victims would have been quadrupled; for word of the strike had spread with the rapidity of thought, and hundreds were running in breathless anxiety to behold it.

Mr. Rouse standing probably within twenty feet of the well and among the very nearest of the spectators did not lose possession of his mind for an instant. He remembered the ravine, and dashed toward it. In the breast-pocket of his coat was a book containing valuable papers, and in the pocket of his pantaloons a wallet containing a large sum of money. These he jerked from their places and threw far outside of the fire, where they were afterwards found in safety. He had accomplished but half a dozen steps when he stumbled and fell, still being within the circuit of fire. He buried his face in the mud to prevent inhalation of the flames; then recovering himself bounded again up the ravine, falling a second time completely exhausted at a point where two men barely endured the heat long enough to seize and drag him forth. He was taken to a shanty near by, placed upon the bed of a workman, and gasped through five hours of excruciating agony before death gave relief. His body from the top of his head down the back and legs to the knees was burned to a crisp. The front of his person being less exposed was less seriously injured, but the face and feet were the only portions so far escaping, as to remain in any degree natural. The former was partially protected by the ground when he fell, and the latter by high-topped boots. Of his clothing, which was very heavy, but a handful of shreds remained.

Rouse during the period of consciousness, which lasted up to within an hour of his death, maintained a coolness of manner most astonishing, and neither by word or action betrayed his terrible bodily suffering. With the precision and unconcern of a man without a care he dictated a will concise in terms and correct in language, and this, too, while being obliged to have water given him with a spoon not only at the end, but in the middle of every sentence. The bulk of his estate was bequeathed in trust to the Commissioners of Warren Co., one half of the proceeds to be applied to the improvement of the public roads. The proceeds of the other half for the benefit of the poor. Suitable bequests were made to all his relatives, and some of his intimate friends also found themselves remembered.

105. The Oil Region in 1861

T. S. Scoville was an early visitor to the oil region, and he wrote the following sketch at Oil City in 1861. It was published in Edmund Morris' *Derrick and Drill, or an Insight into the Discovery, Development, and Present Condition and Future Prespects of Petroleum in New York, Pennsylvania, Ohio, and West Virginia,* James Miller, New York, 1865, pp. 41-43.

I find mud everywhere from four to six inches deep. Every thing is muddy and dirty. Hotels crammed full, two in a bed everywhere, and three if they can get them in, not to mention the number of small-stock travellers that pile in with the rest. Hotels not plastered. Buildings rough outside and in, set on stilts, all new, all hurried; great preparations for drilling, pumping, buying, selling, building—all excitement, life, and activity. At Tidioute there are some 200 wells in progress, and all the way from there here, 30 miles by raft, one is not out of sight of derricks and wells, hundreds and hundreds of them. Here I am more in the heart of the oily dominions than elsewhere. I find that New Bedford and Nantucket, heretofore oildom, has been unsuccessful for years past, and is coming here with its millions of money and hordes of vessel officers, to harpoon the old mother of all whales (earth) and draw her blubber by the force of steam, which must eventually injure whaling oildom very much. Excitements are very common but greased excitements I never saw or heard of.

Drills going everywhere, steam-puffing, pump walking-beams, high above the buildings, working like those on and above a steamboat deck. Everywhere in sight barrels, mountain high, from steamers just in from Pittsburg, towing boats and barges loaded with barrels. The common topic of conversation everywhere is oil, rock drilling, oil shows, depth, prices, prospects for oil for the future, rents of land, best sites, chances for rapidly made fortunes, what has been, and what will be. My opinion is, that the landowners are grabbers; with the disposition to bless themselves and curse the world generally. They require one-half, and some as high as five-eighths, of the oil for ground-rent; but time will settle all these things. The tariff is far too high, but men would prefer digging for the present, without a sure thing ahead, to prospecting at a greater risk. From ten to fifty barrels is the usual yield. Prices have ruled at $10 per barrel here, little less now, though I think when its uses are found out it will be much more in demand.

106. U. S. CONSUL SUGGESTS THE MARKETING OF PETROLEUM IN ANTWERP

A. W. Crawford, a resident of the Venango oil region, was appointed U. S. Consul at Antwerp in 1861. After one month's residence, he wrote the following statement on October 30, 1861, and it appeared in the *Report on the Commercial Relations of the United States with Foreign Nations for the Year Ending September* 30, 1861, p. 176.

I deem it a part of my duty to intimate that some of the numerous oil springs of the Alleghany and Kanawha valleys might profitably let their lights shine in this direction. The distillation of coal oil has but recently been carried on in Belgium. Nor is the Belgium coal largely imbued with gas consequently, linseed oil is as yet the chief illumination.

107. THE PHILLIPS WELL, 1861

The Drake, Barnsdall, Crossley, and other wells drilled in 1859 and 1860 produced more oil than anyone had ever seen and created intense excitement throughout the region, but they were nothing compared to the following wells—the Sherman, Empire, Woodford, Maple Shade, and others—of 1861, 1862, and 1863. The following account of the Phillips well is taken from J. T. Henry, *The Early and Later History of Petroleum with Authentic Facts in Regard to its Development in Western Pennsylvania,* Jas. B. Rodgers Company, Philadelphia, 1873, 232-233.

The Phillips Well (No. 2), Tarr Farm, was struck on the 14th of November 1861, and commenced to flow at the rate of 3,000 barrels per day! Oil at this date was sold as low as fifteen and even ten cents per barrel. Thousands of barrels of the product of this well, for want of barrels—worth then at the well $3.50 to $4.00 each—ran off into

Oil Creek, or were allowed to waste in various ways. In December, one month after "the Phillips" began to flow, she produced by actual measurement three thousand nine hundred and forty barrels in twenty-four hours! She finally settled down to 2,500 to 3,000 barrels and maintained this standard for months. The owners of interests in this marvellous well were accustomed to take their portion of the product by the hour! A crude trough, made of six-inch boards, was constructed from "the Creek" to the tanks, and as boats could be obtained, and sales made, the oil was "let on" and run, two, three, five, or more "HOURS" in each owner's interest. If the boats, barges, barrels or tanks—supplied as fast as possible—filled up before the expiration of the party's allotted time, the oil ran into "the Creek," or upon the ground, and was thus wasted and lost.

Samuel Downer, Esq., later the proprietor of the Downer Oil Works at Corry, was one day standing at the discharge end of the leading trough, which had half an hour before been thrown from a flat boat just filled. The oil was running into the Creek in a volume as large as the trough would hold. "See here," said Mr. Downer, "don't you know you are wasting a hundred barrels an hour here?" "Yes," said the interested party addressed, "but what am I to do with it? You won't give five cents a barrel for it; and I can stand a loss of five dollars an hour rather than let you have it at that price!" Mr. Downer passed on up the Creek.

The lessees of this portion of the Tarr farm had obligated themselves to give "one half the oil, and deliver it to the land-owners in barrels." For a few weeks after the well was struck, the flow was stopped by means of a stop-cock. The question of barrels was finally adjusted, and the flow began again, as above stated, in December 1861. The product of this well is variously estimated; some put it as high as 750,000 barrels, and others at 1,000,000 barrels. "The Phillips" flowed for a year or more, her product lessening, when the pump was applied, and she produced largely for twelve years, and was shut down as late as May, 1873, when her product was from seven to ten barrels per day.

During the "Stock Company epidemic" in 1864-65, all but the land interest of this well was stocked at a fabulous sum—one or two million dollars! While she had vigorous life and marvelous product oil was sold from her immense wooden tanks as low as five cents per barrel, and as high as $13 per barrel.

The Phillips was 491 feet deep, and had 60 feet of oil rock.

108. THE EFFECT OF THE OIL TRADE UPON PITTSBURGH

With an abundance of labor, chemicals, coal, large banking and credit facilities, cheap transportation from the oil field by way of Oil Creek and the Allegheny River, and favorable rail connections east and west, Pittsburgh became the earliest important distributing and refining center. The effect of the early oil trade upon Pittsburgh is described in the following article from *The Pittsburgh Post,* December 18, 1861.

No one who does not make an effort to ascertain for himself can conceive the gigantic proportions which the business of producing petroleum has assumed or the vast benefit our city is reaping and will continue to reap from this new and important branch of trade. To form an idea of the reality it is only necessary to pay a visit to the Allegheny wharf, as we frequently do. We think we are rather under than over the mark when we say that yesterday morning there were at least fifteen thousand barrels of crude petroleum upon and at the wharf. The most general means of transportation is in flats, and the wharf is completely lined with these, full and partially unloaded, while a line of barrels, almost unbroken, extends from Pitt street to about midway between the old Aqueduct and the Mechanics' street bridge. In addition to this we observed several boats filled with oil in bulk, which is pumped into barrels and hauled away. Innumerable empty barrels are also piled higher up on the wharf. It has been the custom to make the Allegheny wharf one vast storehouse for oil, but if some of the large quantity now lying there is not removed we cannot see where that yet in the boats is to be unloaded—and, as for future arrivals they must seek landings above or below the lines designated. Indeed it is frequently with great difficulty that consignees and owners find and identify their oil.

Yet, notwithstanding this immense supply of the crude oil, there is no decline in price. On the contrary the recent advance is well maintained and five hundred barrels were yesterday sold at fifteen cents per gallon. There is a large demand by refiners, who are driving a profitable business and daily erecting new refineries.—Go where you will into the suburbs (and, indeed, within the city limits) and you will see extensive refiners in full blow and new ones being erected or just going into operation. Refined oil has now advanced to forty and forty-two cents per gallon for the best qualities, and at this figure the orders of all our refineries are far in advance of their capacity to fill them. It is thought by many that the business is overdone here, but twice the number of refineries now in operation in this vicinity (the number is variously estimated at thirty-five to fifty) would not supply the demand. In the East figures are even higher than here and if transportation to New York could be easily procured a still further advance would be the result.

The production and refining of this oil gives employment to a vast number of persons who could otherwise, in the present condition of affairs, find no labor for their hands. It is a valuable and permanent branch of business and must yield a handsome profit to all who embark in it systematically and with sufficient capital, the difficulties attending first experiments being now understood and to a great extent overcome. This trade will ere long be a leading feature in our city and we should take every measure to promote and encourage it.

109. The Introduction of Pennsylvania Petroleum into Leghorn, Italy

The following statement about the introduction of petroleum in Leghorn, Italy, was written on September 23, 1865, by A. J. Stevens, U. S. Consul at Leghorn, and it appears in the *Report on the Commercial Relations of the United States with Foreign Nations for the Year Ended September* 30, 1865, p. 453.

When I arrived at this port, in December, 1861, to assume the duties of consul, I found that no effort had been made to introduce into this market that article which is destined to give light to the world—petroleum—and I soon ascertained that nothing was known of this new "Yankee invention," as it was then called. I brought with me the first petroleum lamps that were seen in this portion of Italy, and I have still the sample of petroleum which I exhibited while urging the Leghorn merchants to engage in this line of trade. The result has been most flattering. The amount of petroleum oil now consumed in this market cannot be less in value than $400,000 per annum, with a constantly increasing demand.

110. Petroleum in England

Simultaneously with the expansion of the home market, petroleum was introduced into Europe. The foreign demand began to assume the proportion of a heavy and regular business in 1862. The following article from the London *Times* of December 1861 and reprinted in *The Venango Spectator,* Franklin, January 8, 1862, shows the interest in petroleum in England and the extent to which the trade had developed in that country.

Petroleum, Kerosene, Photogene, or Rock and Well Oil.—The introduction of this article is taking tremendous strides. If the rocks and wells of Pennsylvania, Canada, and other districts continue their exudation at the present rate of supply, the value of the trade in this oil may even approach that of American cotton. Montreal (internally, and perhaps externally by this time) is lighted by the white refined. The oil gas distilled from the raw petroleum is immensely superior, and much more brilliant than own coal gas. For years we have sent coals to America for her gas works, and it will be a singular freak of events if she and Canada should now supply us with a better expedient. The merits of the petroleum will be better understood when importers are informed that besides the uses already named, lubricating oils of every color and specific gravity can be obtained from it; wax also, for the manufacture of paraffine candles, naptha, and consequently benzole (from which the fashionable dyes Magenta, rosenine, anneline, &c., are obtained;) pitch, &c., all of them having several other applications. It is reported on the very best authority, that they have discovered from it now an available substitute for spirits of turpentine for paints, and also a solvent for indiarubber,—results, I understand, that they have not effected in America or Canada, and the importance of which cannot be over estimated. In my first circular it was stated that some 7,000 barrels of crude and refined were on the way to this country, and *The Times* of the 13th inst. mentions 8,000 barrels on the way to London. There are 10,000 barrels coming to Liverpool, and 2,000 barrels to Glasgow, in all about 20,000 barrels. American hostilities and the ice in the St. Lawrence (although we have still St. John's, New Brunswick) may stop supplies to some extent, but that the future will vindicate the best expectation requires little prescience to affirm.

111. Oil Shipments on the Allegheny River

The extent and character of the oil trade on the Allegheny River between Oil City and Pittsburgh is shown in the following article from the *Pittsburgh Gazette and Commercial Journal,* April 15, 1862.

There are fifteen steamers and towboats plying between this city and Oil Creek, whose average capacity is about 800 bbls. each. The flatboats of all classes foot up about 300. Nearly two-thirds of these are employed on Oil Creek. The balance are employed to carry the oil to Pittsburgh. The capacity of the boats employed on the creek will average fully 100 barrels each: those employed on the river about 500 bbls. each.

The steamers average three trips a week, when the river is in good boating stage, and the towboats about two. It takes a flatboat from three to four days to make the trip from Oil City to Pittsburgh. Besides this a large quantity comes down the river in bulk and rafts.

112. RESTRICTIONS UPON THE IMPORTATION OF PENNSYLVANIA PETROLEUM INTO GERMANY

The following account was written on October 18, 1862, by W. W. Murphy, U. S. Consul General at Frankfort on the Main, and appears in the *Report on the Commercial Relations of the United States with Foreign Countries for the Year Ended September* 30, 1862, p. 433.

As a new American article in this country I must mention petroleum. As yet, there is an obstacle to its coming into general use from the restrictions laid on it by the government as well as by the gas and insurance companies, on account of the danger arising from its great inflammability. The gas companies are naturally opposed to it as a formidable rival, and the great cautiousness of the local authorities with respect to it may be judged from some recent regulations issued by the police of the free city of Bremen, which run as follows:

In consideration of the great inflammability of a mineral known as petroleum, this tribunal, by order of the senate, decrees as follows:

1. As soon as any vessel, having petroleum on board, enters one of the ports of Bremerhaven, the captain or his lieutenant shall, even before the entrance of the vessel into their sluice, under a penalty of from five to ten thalers for each cask, give information to the authorities that he has petroleum on board, at the same time specifying the exact number of casks.

2. The vessel having entered the harbor, the petroleum is to be landed with utmost despatch, and is then to be deposited in such open place as shall be pointed out by the police authorities, and where alone it is to be worked. The warehousing of the same on private property is, for the present, prohibited.

3. If petroleum has to be shipped or reshipped in any port, it must be done only by vessels which immediately afterwards leave that port.

4. All fires or lights are prohibited on board of any vessel having petroleum in cargo. To enforce which regulation all such vessels are furnished with guards or watchmen at their own expense.

5. Any vessel, wholly or partially laden with petroleum, may be prohibited altogether from entering the port, especially if neglecting regulation 2, and be ordered away.

6. Infringement on regulations 2, 3, and 4, is punishable by fine not exceeding 100 thalers &c.

It is also understood that railroad companies prohibit the transport of the petroleum in the cars. The undersigned, at the request of some New York merchants, first introduced this oil into Germany, where now it is so large an article of commerce.

113. Flowing Wells Stimulate Petroleum Trade

The striking of such flowing wells as the Funk, Empire, Woodford, and Sherman in 1861 and 1862 resulted in a remarkable increase in the production of oil; the production jumped from almost 1200 barrels a day in 1860 to over 5000 in 1861, and more than ever in 1862. A fabulous supply and a limited market had the obvious effect of depressing the price of oil; it dropped from $10 a barrel in January, 1861, to 50 cents in May, and 10 cents at the end of the year. In the following article from *The Venango Spectator,* November 5, 1862, the beneficial effects of this depression are indicated.

The great depression in the market prices of crude Petroleum during the past year, while it has almost ruined all the operators of limited means, or forced them to seek a remunerative business, has also been the means of introducing the product to all parts of the world and made it as much of a necessity as any single article of human want. As an illuminator, whatever it goes it is at once beyond the reach of competition. Its brilliancy is unsurpassed, and its cheapness unparalled, even at double the present ruling rates.

The discovery of the flowing wells was probably the cause of the ruinously low prices of Petroleum. From them the supply for a short period was almost too fabulous for belief. It was feared the demand would never keep pace with a yield so enormous. Crude Oil at the wells had but little value, and for some months would not pay transportation to the sea-board. But this very depression has ultimately worked for the benefit of the operators who have not succumbed to the pressure. It has introduced the Oil freely in our own country, and given it a commercial status abroad,—a status it could not have acquired in years, under ordinary circumstances.

The foreign demand in 1860 was comparatively nothing—the few shipments made in that year being mere ventures. In 1861, oil began to attract attention in Europe, and has now become one of the heaviest, as it soon will be the largest article of export from this country. Taking the present year, we have exported from January 1 to October 27, 7,658,680 gallons, making one hundred and ninety one thousand six hundred and eighty barrels of forty gallons each. This foreign demand is constantly increasing.

With this steadily growing demand at home and abroad, the production is decreasing. The flowing wells are no longer to be counted upon. The yield of this whole region at the present time cannot possibly glut the market. Instead of the flowing wells we have to rely upon the pumping institutions which low prices had made valueless, but which must again come into operation and be better for all concerned. We think there is no danger of the ruinously low prices again being forced upon operators—most assuredly, none whatever, if they keep their eyes open to their own interest.

The number of Refineries now in operation here and those in progress and in contemplation will soon create a respectable home market. The indications are favorable for a prosperous future in the Oil Business, but the present prices are not yet renumerative to well owners, nor is Oil today bringing more than one-half of its intrinsic value.

114. ANDREW CARNEGIE VISITS THE OIL CREEK REGION

One of the most important real estate transactions in 1859 was the purchase of the Story farm, a few miles above Oil City, by a group of Pittsburghers; the farm, consisting of nearly five hundred acres, sold for $40,000. The owners, in turn, leased lots to different persons and soon had some producing wells. Discouraged by the low price of oil, they decided to change into a joint stock company and organized the Columbia Oil Company in May, 1861, with a capital of $200,000, divided into 10,000 shares. Andrew Carnegie was one of the heaviest stockholders. The following account of his visit to the Story farm is taken from *The Autobiography of Andrew Carnegie,* Houghton Mifflin Company, New York, 1924, pp. 136-140. Reprinted by permission of Houghton Mifflin Company and the author.

It was in 1862 that the great oil wells of Pennsylvania attracted attention. My friend Mr. William Coleman, whose daughter became, at a later date, my sister-in-law, was deeply interested in the discovery; and nothing would do but that I should take a trip with him to the oil regions. It was a most interesting excursion. There had been a rush to the oil fields and the influx was so great that it was impossible for all to obtain shelter. This, however, to the class of men who flocked thither, was but a slight drawback. A few hours sufficed to knock up a shanty, and it was surprising in how short a time they were able to surround themselves with many of the comforts of life. They were men above the average, men who had saved considerable sums and were able to venture something in the search for fortune.

What surprised me was the good humor which prevailed everywhere. It was a vast picnic, full of amusing incidents. Everybody was in high glee; fortunes were supposedly within reach; everything was booming. On the tops of the derricks floated flags on which strange mottoes were displayed. I remember looking down toward the river and seeing two men working their treadles boring for oil upon the banks of the stream, and inscribed upon their flag was "Hell or China." They were going down, no matter how far.

The adaptability of the American was never better displayed than in this region. Order was soon evolved out of chaos. When we visited the place not long after we were serenaded by a brass band the players of which were made up of the new inhabitants along the creek. It would be safe to wager that a thousand Americans in a new land would organize themselves, establish schools, churches, newspapers, and brass bands—in short, provide themselves with all the appliances of civilization—and go ahead developing their country before an equal number of British would have discovered who among them was the highest in hereditary rank and had the best claims to leadership owing to his grandfather. There is but one rule among Americans— the tools to those who can use them.

Today Oil Creek is a town of many thousand inhabitants, as is also Titusville at the other end of the creek. The district which began by furnishing a few barrels of oil every season, gathered with blankets from the surface of the creek by the Seneca Indians, has now several towns and refineries, with millions of dollars of capital. In those early days all the arrangements were of the crudest character. When the oil was obtained it was run into flat-bottomed boats which leaked badly. Water ran into the boats and the oil overflowed into the river. The creek was dammed at various places, and upon a stipulated day and hour the dams were opened and upon the flood the oil boats floated to the Allegheny River, and thence to Pittsburgh.

In this way not only the creek, but the Allegheny River, became literally covered with oil. The loss involved in transportation to Pittsburgh was estimated at fully a third of the total quantity, and before the oil boats started it is safe to say that another third was lost by leakage. The oil gathered by the Indians in the early days was bottled in Pittsburgh and sold at high prices as medicine—a dollar for a small vial. It had general reputation as a sure cure for rheumatic tendencies. As it became plentiful and cheap its virtues vanished. What fools we mortals be!

The most celebrated wells were upon the Storey farm. Upon these we obtained an option of purchase for forty thousand dollars. We bought them. Mr. Coleman, ever ready at suggestion, proposed to make a lake of oil by excavating a pool sufficient to hold a hundred thousand barrels (the waste to be made good every day by running streams of oil into it), and to hold it for the not far distant day when, as we then expected, the oil supply would cease. This was promptly acted upon, but after losing many thousands of barrels waiting for the expected day (which has not yet arrived) we abandoned the reserve. Coleman predicted that when the supply stopped, oil would bring ten dollars a barrel and therefore we would have a million dollars worth in the lake. We did not think then of Nature's storehouse below which still keeps on yielding many thousands of barrels per day without apparent exhaustion.

This forty-thousand-dollar investment proved for us the best of all so far. The revenues from it came at the most opportune time. The building of the new mill in Pittsburgh required not only all the capital we could gather, but the use of our credit, which I consider, looking backward, was remarkably good for young men.

Having become interested in this oil venture, I made several excursions to the district and also, in 1864, to an oil field in Ohio where a great well had been struck which yielded a peculiar quality of oil well fitted for lubricating purposes. My journey thither with Mr. Coleman and Mr. David Ritchie was one of the strangest experiences I ever had. We left the railway line some hundreds of miles from Pittsburgh and plunged through a sparsely inhabited district to the waters of Duck Creek to see the monster well. We bought it before leaving.

It was upon our return that adventures began. The weather had been fine and the roads quite passable during our journey thither, but rain had set in during our stay. We started back in our wagon, but before going far fell into difficulties. The road had become a mass of soft, tenacious mud and our wagon labored fearfully. The rain fell in torrents, and it soon became evident that we were in for a night of it. Mr. Coleman lay at full length on one side of the wagon, and Mr. Ritchie on the other, and I, being then very thin, weighing not much more than a hundred pounds, was nicely sandwiched between the two portly gentlemen. Every now and then the wagon proceeded a few feet heaving up and down in the most outrageous manner, and finally sticking fast. In this fashion we passed the night. There was in front a seat across the wagon, under which we got our heads, and in spite of our condition the night was spent in uproarious merriment.

By the next night we succeeded in reaching a country town in the worst possible plight. We saw the little frame church of the town lighted and heard the bell ringing. We had just reached our tavern when a committee appeared stating that they had been waiting for us and that the congregation was assembled. It appears that a noted exhorter had been expected who had no doubt been delayed as we had been. I was taken for the absentee minister and asked how soon I would be ready to accompany them to the meeting-house. I was almost prepared with my companions to carry out the joke (we were in for fun), but I found I was too exhausted with fatigue to attempt it. I had never before come so near occupying a pulpit.

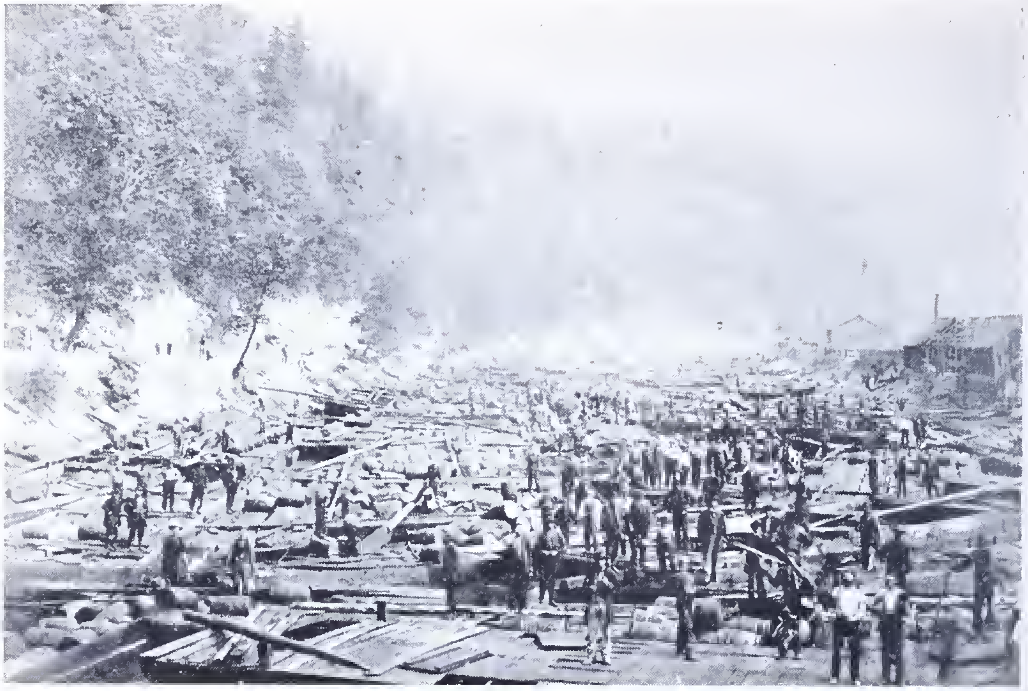
115. THE POND FRESHET

The facilities for shipping oil from Oil Creek prior to 1862 were crude and inadequate, except when the water in Oil Creek was high enough to permit flatboating. High water stages averaged less than six months a year, and during the rest of the time oil had to be hauled to different railroad shipping points. The only alternative to this slow and expensive method of transporting oil was the pond freshet, which lumbermen had used for years to raft their logs down Oil Creek when the water was too low to permit navigation. An excellent description of a pond freshet, as told by A. S. Dobbs, Superintendent of the pond freshet on Oil Creek, was published in the *Oil City Register* and reprinted in *The Warren Mail* on January 24, 1863.

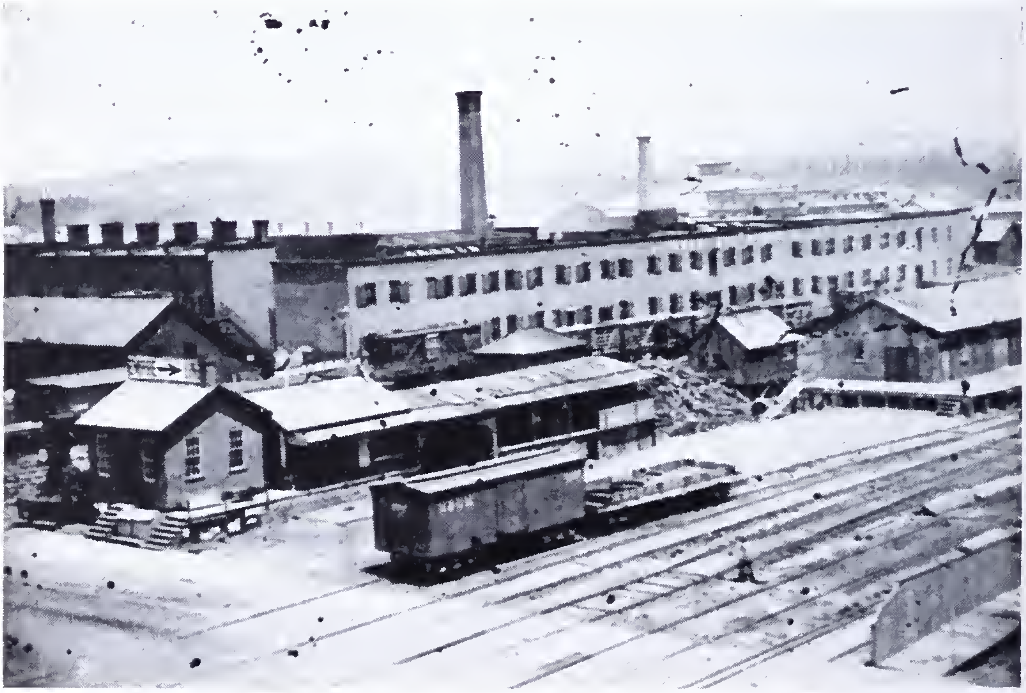
A Pond Freshet is a temporary rise of water in the creek for the purpose of running out boats, rafts, logs, etc. The water rises high enough to run out boats containing sometimes five hundred, and in some few cases, seven hundred barrels of oil. There are usually from one hundred and fifty to two hundred and fifty boats on each freshet. It lasts from one to two hours, and is caused by letting the water out from seven to seventeen dams on the principal branches of the Creek, so that the water will all meet together, making quite a flood upon which from seven thousand to thirty thousand barrels of oil are run in boats to the river.

The dams are built with a solid abutment at each end and often one in the middle. Between these abutments there are timbers made very solid in the bottom of the creek, in which mortises are made every three or four feet. On the top of the abutements, which are usually from ten to twelve feet high, other timbers are fastened, spanning from one to the other. These timbers are directly over or a few inches below the row of mortises in the lower timbers at the bottom of the creek. Scantling, from six to eight inches square, and ten to twelve feet long, with a tenon at one end, so as easily to enter the mortises in the timber in the bottom of the creek, are prepared and stood up perpendicularly, the lowest end in the mortice, and the upper leaning against the timbers which span the abutments. Then loose boards are placed on the upper side of these studs or posts, which are firmly held to their place by weight of the water. Thus the dam is completed. When we wish to make a pond freshet we go to the upper dams on the different branches of the creek, some of which are ten miles above Tituville, and commence about midnight either to pull with a lever and chain, or cut away these studs, and the water all rushes out of the dam at once. We then wait until this water gets into or commences running over the next dam, and then cut it way, and keep repeating this process until we come to the lower dam, three miles below Titusville. When it, which is a very large dam, is cut, we have let loose, all in one body, in some cases, the water of seventeen dams, which makes a rise of from twenty-two to thirty inches above the highest rock on the swiftest ripple. The studs are again put in, water collects, and the mill men saw and grind until they are all stopped from twelve to forty-eight hours by the next Pond Freshet.

The shippers and boatmen having been notified of the day upon which the freshet is to take place, begin to make preparations several days previous to it. Boats are overhauled, put in order, and then are towed, by means of horses, to the point on the creek from which they intend to start. The boats are then loaded and everything made ready for the flood which is to waft them to the much desired harbor at the mouth of the creek. About the time the freshet is expected the boatmen stand ready to let loose their lines. A cool, pushing breeze is the first sign of it, and soon after come the swirling waters. Inexperienced boatmen generally cut their boats loose upon the first rush of water. As a matter of course, their boats run ahead of the water, and get aground upon the first ripple or shoal. The creeks being very narrow and the force of the current generally swinging these boats across it, a jam, and not unfrequently a great loss of oil and boats ensues, just from the inconsiderate haste of a few. The experienced boatman waits at his harbor, until the water commences to recede, then cuts



POND FRESHET DISASTER, OIL CITY, MAY 31, 1864
A scene of one of the greatest pond freshet disasters on Oil Creek. Original print in Drake Museum.



DOWNER OIL WORKS, CORRY, 1863
The most famous of all the early refineries was the Samuel D. Downer Works at Corry, Pennsylvania. Built in 1861 at a cost of $125,000, it had a capacity for refining 400 barrels of oil daily. Mather Collection, Drake Museum.

his line loose and trusts himself to the mercy of the swift current, and comes into port upon the highest part of the rise. The current of a first-class pond freshet will run at the rate of six miles an hour. An ordinary one about four miles, and a small one two miles and a half. If the boatman meets with no obstacle he soon anchors his craft at our wharf.

There are several points of the creek where formidable obstacles are interposed to vex the navigator. Among these are the pier at the McClintock Bridge, and a pier to support the machinery of a well in the middle of the creek immediately below; the Forge Dam, through which is only a narrow passage for boats; the pier of the bridge at this place, and the bar at the mouth of the creek itself. One boat getting across the creek at either of these places is apt to cause a "jam."

The boats are crushed against each other, and being generally built very light are easily broken, and if loaded with bulk oil, the contents are poured into the creek. If in barrels, the boat sinks, and barrels float off, and the owner rarely recovers them again.

Once landed at our wharves, the boat is either unloaded, or if the water is in good boating stage, goes, after brief preparation to Pittsburg.

Our town is quite lively during the evening after a pond freshet. Shippers are busy paying off the boatmen, the citizens of the creek are laying in a stock of the necessaries of life, and all is bustle and business. You see men dripping with the oleaginous product. Our hotels are filled to repletion with these greasy men who are supplying light for the world. Oil is the only topic of conversation, and the air is redolent with its sweet perfumery. The next morning boats are unloaded, and again towed up the creek for the next freshet, and comparative quiet again reigns in our city.

116. Fire Breaks out among the Oil Boats at Oil City

The earliest and most serious calamity to fall upon the oil region occurred on the morning of May 13, 1863, when fire broke out at 2 a. m. among the oil boats in the eddy just below Oil City. B. S. Vincent, one of the eye-witnesses, furnished the following description of the fire. It appeared in *The Venango Spectator,* Franklin, May 13, 1863.

The men belonging to the boat on which the fire started, were awakened by an explosion which blew the roof from their shanty, and sent its burning fragments into a boat loaded with bulk oil lying alongside. The long line of boats moored in the eddy, to the number of 300 to 400, were cut loose at the up stream end, causing the whole fleet to swing across the river, and communicating the flames to a number of storage barges on the opposite side. From the lower end of the eddy to the east bank of the river, quartering with the stream, the river was bridged with oil boats, which in an almost incredibly short time were a mass of smoke and flame, at least half a mile in length. The scene was one of most fearful description, as none could know the extent of danger, nor what might be the loss of human life in that vast fleet.

Two men made their escape from the flat on which the fire commenced, leaving a companion on board as she swung into the stream. He undoubtedly perished.

As the cables of the burning boats parted, they drifted down stream, one by one, threatening destruction to everything below. Our informant counted 52 adrift and on fire from Moran's to Howe's eddy. To add to the terror of the scene, men were jumping from boat to boat in the blinding smoke while the fleet was together, making their escape to the shore.

A messenger started as soon as the fire commenced, to convey the news down stream and enable our citizens to take measures against the dangers that threatened us.

At 6 o'clock, this morning a large boat wrapped in flame and smoke was seen coming down the river. Every effort that could be was made to land her—at one time with partial success—but she kept on her way. She was slowly nearing the Allegheny Bridge (at Franklin) which, unless her progress could be arrested, was felt to be doomed. No human efforts could save this noble structure, except the landing of the burning boat, and all attempts at this had failed. She passed under the Bridge, the flames shooting to the very comb of the roof and instantly enveloped it in fire. A large crowd of people were on the Bridge at the moment, several who made narrow escapes, so rapid was the spread of the flames. In thirty minutes this splendid structure was totally destroyed, leaving nothing but the piers. They are uninjured.

The destruction of oil is immense, but it is impossible to give particulars of the loss as we go to press. The Michigan Oil Company it is said suffer heavily.

This is the most serious calamity that has yet visited us. The loss of the Bridge is a great public misfortune and one that steps should immediately be taken to repair.

117. The First Refineries

The following account of the first refineries of petroleum was written by William H. Abbott for the *Centennial Edition of the Daily Tribune Republican of Saturday morning, May* 12, 1888, *Containing a History of the Founding of the City of Meadville and Settlement of Crawford County and Its Growth and Development During One Hundred Years; An Account of the First Centennial Celebration Held at Meadville, May* 11 *and* 12, 1888, *Together with Historical and Biographical Sketches of Prominent Men and Events,* Tribune Publishing Company, Meadville, 1888, pp. 164-165.

Very soon after my arrival in Titusville, on February 9, 1860, I purchased an interest in the James Parker farm, located in the village. On this property a well was finished about the 20th of the month, that being the next one after Colonel Drake's, which was completed September, [August] 1859. All the wells put down that year were by means of spring-holes, a very slow and simple method, and the wells were very shallow; Colonel Drake's being only 69 feet deep. The Barnsdall well was 112 feet deep, and produced 50 barrels a day for quite a number of days, and was reasonably productive for many months. The Crossly well—the third one on the creek—began pumping March 14, 1860, and produced 60 barrels a day.

At that time, we had quite a production, and needed a market for it; I went to New York, where I made an arrangement with Schefflin Bros., to handle my products. There I met Geo. M. Mowbray, the great chemist, who soon after came to Titusville and took an active part in the work of refining oil. That winter (1860-61) I built the first refinery in the town, and made the first run of oil January 22, 1861. Crude oil was then selling at $10.00 a barrel. Soon after this the war broke out, when business became greatly demoralized, prices fell rapidly, and oil could be bought for $1.50 a barrel. This was before there was a railroad, consequently all the machinery and appliances used in the production of oil, had to be carried in wagons, and the same means were employed in taking the oil to market. The nearest shipping point was Union Mills; cartage was from 75 cents to $1.25 a barrel. We bought large quantities of machinery and fixtures in Pittsburg, which were brought to Franklin and Oil City by river. How different our refineries were then from what they are now! Then, we erected a large building, in which we placed the stills and bleachers, with all the fixtures and tanks, a proceeding which is now considered very hazardous. Our yield was not over 50 per cent. All the tar and naphtha, which are now worth as much as refined oil, were then run into the creek or burned up; great as the loss was, it was the only way we had of disposing of them. We also suffered considerable loss from the oil being exposed in open cars; after much time and trouble I secured some coal cars, which I had enclosed in rough boards. Soon after this, however, the railroad company realized the fact that the oil was likely to give them a large business, and decided to furnish a number of cars for transporting it.

It was very difficult to procure suitable barrels for the oil. I manufactured some in Ohio, and brought them across the country in wagons. The acids used in the process of refining had to be brought from Cincinnati, which made them very expensive by the time we received them. There were great fluctuations in the price of oil at this time; in the summer there was little demand for it, but in the winter the demand greatly exceeded the supply. I sold refined oil at from 12½ cents to $1.05 a barrel. We also experienced many changes in the price of crude oil. When refined oil was little wanted the crude would be very cheap. I have purchased thousands of barrels of it at the wells for 25 cents a barrel, and after sending them to New York I had to pay for charges and freight, $1.00 more than the oil sold for.

The first person to experiment with petroleum, and make a success at refining it, was Samuel M. Kier, of Pittsburg. He procured his supply from the old salt wells at Tarentum. When refined he called it carbon oil. I purchased from him, paying $1.25 a gallon by the barrel. This was far superior to the oil made at that time in Canfield, Ohio, from the fine cannel coal; or to whale oil which cost from $1.75 to $2.25 a gallon. It was a fortunate circumstance that on the decline of the whale-fisheries, and particularly, after the destruction of our whaling fleet by the rebels, during the last year of the war, there should be at hand so cheap and abundant a substitute; thereby preventing the public generally from suffering any inconvenience from the loss of whale oil.

In April 1860, I met a Mr. Williams, who had been experimenting in the refining of oil from the old Drake well, and had become discouraged with his failures. I sold him 200 barrels of oil, and told him he must give it milder treatment; he had been using coal oil which required harsh treatment, and often repeated, which was not the case with petroleum, nature having in a large measure refined it. He adopted my suggestion and made a success of it, and I afterwards sold him many thousand barrels of our oil.

It is very generally known that the petroleum of Pennsylvania is the best ever produced in any country, yielding a greater variety of products, is easily treated, and is far superior in quality, while no part of it is wasted, all being utilized to the fullest extent.

In the early days of the oil excitement, Mr. Samuel Downer came to Corry, and built large refining works there. He was then much in favor of small stills, holding twenty barrels. He had twenty of this size; but as others began the business of refining and experimenting as to the most desirable manner of building the stills, the preference seemed to be for the larger size, those holding from 1,000 to 3,500 barrels. It was then thought that from 60 to 65 per cent. was a good yield, while now a producer is scarcely satisfied with less than 85 or 90 per cent.

Without attempting to give a complete list of the products of petroleum, I will simply mention some of its principal uses, viz: That of lubricator, illuminant, fuel, dyer, pigment, and numerous kinds of medicine, among which are liniments, ointments, nervines, and an anaesthetic.

118. THE DOWNER REFINERY AT CORRY

The most famous of all the early refineries was the Samuel D. Downer plant at Corry. Instead of waiting for the ruin of his newly-established kerosene business at Boston, Downer started for the oil field shortly after he heard of Drake's discovery in order to find a suitable location for a refinery. After a careful examination, Downer decided to build his refinery at the junction of the Philadelphia & Erie and the Atlantic & Great Western railroads. Here, in October, 1861, he began constructing the plant. The following article was written by the Editor of *The Warren Mail* on June 13, 1863.

In October, 1861, Samuel Downer, Esq., of the Downer Kerosene Oil Company, Boston, commenced an extensive Seneca Oil Refinery at Corry, situated in Erie county Pa., where the Philadelphia and Erie, the Atlantic and Great Western, and the Oil Creek Railroads form a junction. Geo. A. Coney, Esq., an energetic, efficient and wide-awake Yankee, superintended the work from the beginning. W. H. L. Smith, Esq., is the General Manager. They cleared away the forest, made their brick, put up their buildings, brought on their machinery, and have now in less than two years one of the largest and finest establishments in the extensive oil regions of Pennsylvania in successful operation. The main building is two stories high and three hundred and ten feet long. Five or six other brick buildings, large and small, for a planing mill, machine shops, etc., adjoin it, all covering some four acres with additional buildings continually going up. Twelve stills are in operation, producing the clearest and very finest quality of oil in the market. The twenty-five tanks already completed will hold some thirty thousand barrels. Two others, each holding ten thousand barrels, are being built on the ground. The capacity of the Works for refining is calculated to be one million gallons per year. Their cost already ranges from $125,000 to $150,000. Most of the time some 150 men are employed. All the machinery is of the most approved pattern and each department is in complete order. Great care to prevent an explosion is taken. Spectators are very seldom admitted. Near the furnaces is an apparatus for throwing the steam suddenly into every room with great force in case of fire.

In addition to the Refinery proper, there are twelve cozy cottages and two or three double houses for employees, all of a neat and uniform finish. The residence and grounds of the resident Superintendent, Mr. Coney, are a model of neatness and good taste—far beyond what you generally find in many villages of twelve, instead of two years' growth. Besides these, making quite a village of themselves, they own the "Boston House" leased by Ex-Sheriff Foreman, formerly of our county. It is a large, two story building of wood containing thirty rooms, having been commenced in March and opened in June, 1862. It is the best public house in the place.

The Downer Oil Works, though originally commenced by Mr. Downer alone, are now carried on in connection with the larger Oil Works in Boston. The crude oil is procured on Oil Creek. It is received at their door from the Oil Creek cars, and the refined article is delivered to the Atlantic and Great Western cars for shipment to New York and other Eastern cities, except what may be sold at wholesale or retail for home consumption.

Altogether the Downer Oil Workers at Corry reflect much credit on the energy and business sagacity of their originators, and are an acquisition to the wealth and enterprise of North-western Pennsylvania. I trust they may richly reward the proprietor for the investment of his capital in this growing section of our State, already offering splendid chances for money making in this and other branches of business.

119. The Noble Well, 1863

Probably the best-paying flowing well and, at the same time, as large a producer as any, was the Noble well on the Farrel farm. It is estimated that it ultimately earned for its owners over $2,800,000. The following account of it is taken from J. T. Henry, *The Early and Later History of Petroleum with Authentic Facts in Regard to its Development in Western Pennsylvania,* Jas. B. Rodgers Company, Philadelphia, 1873, pp. 375-392.

In the spring of 1860, Mr. Noble secured for himself and partners—Messrs. Delemater and Lamb—a lease of sixteen acres on the Farrel farm, half a mile above what is now known as Pioneer. For this lease he paid $600 bonus, "spot cash," and one-fourth of the oil. He bound himself and associates to proceed without delay—interpreted to mean twenty to thirty days—to drill a well 134 feet deep. This done his lease was held to be valid for twenty years, whether oil was found at that depth or not. In pursuance of this contract, he set immediately about the work. A derrick was erected, a "spring pole" hung, and the labor of drilling began. It required days and weeks, running into months, to put down a well to this depth with a "spring pole," but the work was finally accomplished—Mr. Noble personally superintending the entire labor. It was done by "days' work," hiring men from time to time to replace those who had "worn themselves out" in the exhausting labors required of them.

The well reached the required depth—134 feet—late in the fall of 1860, and no oil, and not even "a show" of the coveted article was visible, or had been found from its commencement. Mr. Noble was the master spirit of the enterprise, and his judgment and determination was law to the balance of the owners. He resolved to abandon the well for the present, at least, and develop some one or more of his many other leases. This he did without unnecessary delay, and nothing was done upon the property, in the way of developments, until the spring of 1863. Meantime a "third sand rock" had been found at various points on "the Creek" from which oil was being produced in large quantities.

The contract for drilling this abandoned well of 1860, was let to Sam'l S. Fertig, of Titusville, since become one of the successful producers of the region. He employed for the purpose of sinking the well, a small eight or ten horse-power boiler and engine, and with the opening of the spring of 1863—in April, or perhaps earlier—he began the work of putting the well down to the "third sand." As a part of his payments for the labor, Mr. Noble assigned to him a one sixteenth *working* interest. The well was drilled rapidly, but after reaching the oil rock, at 452 feet from the surface, Mr. Fertig found one or two "crevices," of ten to twelve inches depth, as he judged by the dropping of the drill-tool. The last "service" of ten or twelve inches depth alarmed him, lest he might get his tools fast, and believing he was deep enough in the "sand rock," and prompted by his fears for the safety of his tools, he "shut down" for consultation and further orders. Mr. Noble was absent at this juncture of affairs, and did not learn of Mr. Fertig's action for a day or two. When he returned he found everything at a stand-still, and the contractor quite determined to stop where he was, and test the well!

Some time before the well was down, Mr. Noble, who had from the commencement in 1860, and so on to the second renewal of operations, sole control of all matters pertaining to it, determined to tube it, when completed, with the best artesian tubing. To obtain this he visited the various manufactories at Cleveland and Pittsburgh, and at last, where he least expected to find it in the latter city, his eye fell upon a few lengths of the desired article, lying in front of a small establishment, in the rear of the St. Charles Hotel. He was not long in ascertaining its "author and finisher," a large establishment in Philadelphia. He ordered six hundred feet shipped at once, and contracted with the Pittsburgh party to take it on its arrival there, mount each joint with brass thimbles, and at the same time manufacture for him a peculiar discharge pipe, which was to cap the tubing, having four stop cocks to facilitate the conveyance of the oil to any desired point. This done he hastened back to the well to await its arrival.

Time and space will not permit a detail of the delays attending the transit of this tubing to its destination. It was "switched off" at Ravenna, Ohio, and lay there a week or two, and was delayed in all about twenty days at various points. It finally reached Corry and here Mr. Noble obtained permission from Dr. Streeter, a director of the road, to have it transferred to a freight car, and this attached to a passenger train nearly ready to start for Titusville. The $10 slipped into the palm of the "train dispatcher" was an amazing help, in the matter of facilitating this unusual manner of transporting large quantities of freight.

The tubing reached its destination in a day or two after its shipment from Corry, and was in the well and ready for operation by 3 o'clock on the 27th day of May, 1863. The well had been standing open for a week or ten days, the surface water, and water veins below pouring into it in great volume. It had not filled up, but the roar of the "falling waters" was almost deafening. Where the water ran to, as the hole did not fill up, the reader can "guess" as well as we can.

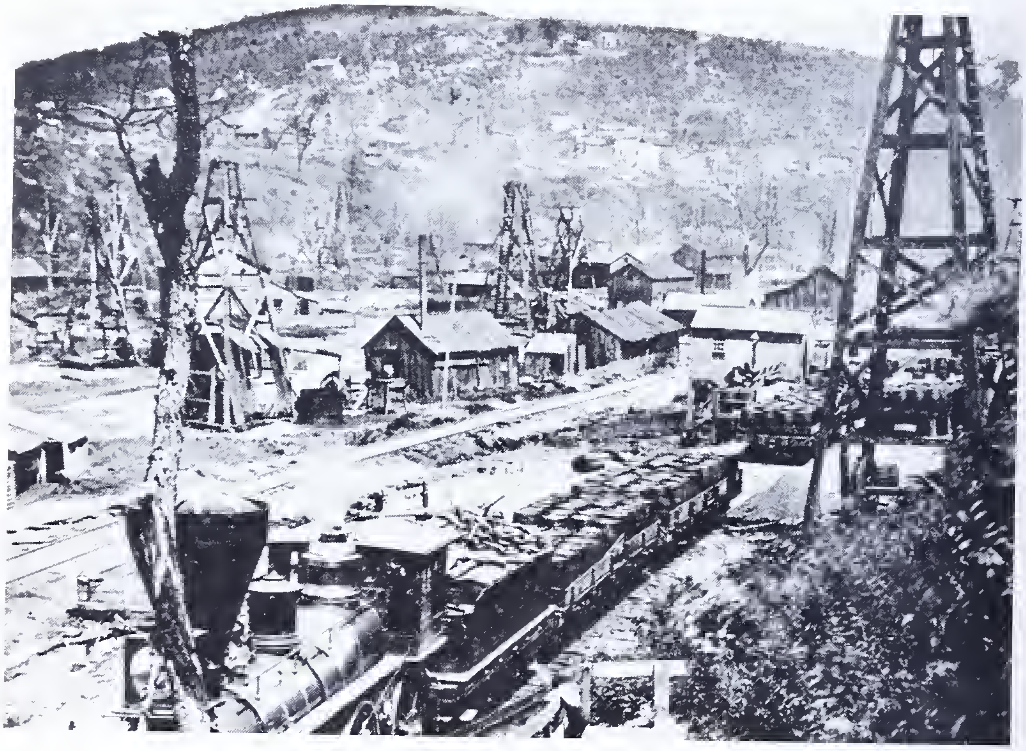
After a few hours delay the well was ready "to start up." Mr. Noble gave orders to Mr. Fertig, to "start her slowly and pump steadily." This done he repaired to an eating-house near by, as he says, "to get a bit of something to eat." He had but partially finished his lunch, when a lad at the door remarked, "That well throws water bully'." Mr. Noble heard the remark, but paid no attention to it, until it was thrice repeated; then turning his eye toward the door he saw the "Noble well" spouting oil and water far above the derrick and trees about it. Mr. Noble describes the scene most graphically. It was about 4 o'clock and the expectation was, that it would require pumping some hours before the golden stream would show itself. But it came within twenty minutes after the pump started. The well puffed and blowed, and roared, and the earth about it fairly trembled with agitation. No one dared to approach it, even within the circuit of the falling spray of oil and water. The little ravine near the derrick soon filled up with the great volume of oil rattling and foaming through the two-and-a-half inch tubing. Something must be done to control the discharge and save the oil. Mr. Noble offered $50 each, to any three men who would enter the derrick and attach his ingenious device for conducting the oil into tanks. The men stripped to the buff, and entered the derrick. The spray, oil and water completely hid them from view, and nearly drowned them before they could accomplish their task. At the end of an hour, or a little less, they had made their connection and returned to the outer world. For their service Mr. Noble gave them $200.

The flow of the well being now under control, tanks became a vital necessity. One, of seven hundred barrel capacity had been provided, but this was filled in an incredibly short space of time! Soon after the oil began to flow into the tank, Mr. Noble despatched men on horseback down "the Creek" to advise boatmen that they could have all the oil they wanted at $2 a barrel. And about the hour the 700-barrel tank was full, boats began to arrive from below, and by midnight enough were abreast of the well to take the oil as fast as it could be conveyed to them. The following day more came, and by noon "oil boats" lay in "the Creek" for twenty rods above and below the well, filling the stream from bank to bank.

This was temporary relief only. Mr. Noble immediately employed all the men he could find to assist in supplying tanks. Fifty men were at work the day following "the great strike" clearing away, and putting together immense tanks made of wood and having capacity of from eight hundred to twelve hundred barrels. Within fifty feet of the "Noble well" stood an empty tank with a capacity of three thousand barrels. None of the owners could be found, but Mr. Noble stretched his lead pipes into it, and it was full in less than twenty-four hours after! Other tanks, wholly empty, were within a hundred feet of the "Noble well;" and these were pressed into the service and filled. By this time all these tanks were running over full, the boats loaded and dispatched, Mr. Noble had an ample supply of his own, ready for use.

We have been thus particular in our detailed account of this well, because of the almost romance with which it was surrounded, and that seemed to mark its history from its commencement—and this even is not its complete history. The well from the start flowed between 2500 and 3000 barrels daily, and continued at this standard for many months. During its second year, its product gradually fell off, and in the later months of its second year's life in 1865, it produced four to eight hundred barrels a day. The first month's shipments and sales from its product were 61,300 barrels,—and there were still left in the tanks 15,000 barrels. The loss from waste, leakage, want of tankage, &c., &c., was large, and altogether it is safe to say that during the first months of its existence, its product was not less than 3000 barrels per day. When it began to flow, oil was selling at the wells at $4 per barrel. To save as much of it as possible, Mr. Noble sold it by the boat load, *and with little regard to the size of the boat,* at $2 per barrel. While the product was at its height, oil was sold at $6, $7, $8, and even $10 and $13 per barrel, which went to enrich the fortunate owners and land proprietors. It has come to be a proverb almost, that "The Noble Well" earned more money for its owners, than any well ever struck in the oil regions. And it may be added, that every dollar it earned was scrupulously accounted for, and paid over to the rightful owner.

Mr. Noble superintended the work of putting down the well, and determined, when it began to produce in such immense volume, that every interest should have its full share of the profits—and he rigidly adhered to this determination, as long as he had control of it. When it subsequently passed into the hands of a stock company he sur-



OIL CREEK RAILROAD AND EARLY OIL CARS

Note the earliest type of oil cars—just flat cars loaded with barrels on end. Mather Collection, Drake Museum.

rendered his charge, conscious that no interest, however small—and there were many who held interests, drawing only one barrel in one hundred and seventeen—had suffered a loss of a dollar.

120. THE OIL CREEK RAILROAD

No railroad connection was made with any of the towns in the oil region until 1862. Within a short time after the drilling of the Drake Well, a group of capitalists from Warren, Pennsylvania, organized the Oil Creek Railroad Company, and in order to take advantage of the facilities offered by both the Philadelphia and Erie Railroad and the Atlantic and Great Western, they built a broad-guage track in 1862 from Corry to Titusville, a distance of about twenty-seven miles. The following account is taken from the *Crawford Journal* (Meadville, Pennsylvania), January 19, 1864.

The annual meeting of the stockholders of the Oil Creek Railroad was held at Warren, Pa., on the 11st inst. The report of the board sets forth the operations of the company from the beginning in a concise and clear manner. The business on the 27 miles from Corry to Titusville for the 14 months ending December 31st, 1863, is represented as follows:

There was carried over the road since November 1st, 1862, 430,684 bbls. of oil, 459,424 empty barrels, 22,727 tons of merchandise, and other freights, and 59,987 passengers. Total receipts, including mail, telegraph, and express business, $384,705 18. The expenses for maintaining and operating the road, cost of rolling stock, permanent improvements, payment of interest, and other items $254,538 49. Surplus $130,151 69.

An election was held for President, and Directors, for the ensuing year, and the following persons chosen:

President, T. Struthers; directors, Orris Hall, B. J. Wells, Boon Mead, Myron Waters, James H. Eddy, C. C. Wetmore, J. S. Alden, L. Olney, Jr., E. Cowan, G. V. N. Yeates and H. A. Kent. The board was organized after the election and re-elected John F. McPherson as Secretary and Treasurer. A dividend of 25 per cent was declared to January 1st, 1864.

121. INVENTIONS RELATING TO PETROLEUM

The discovery of petroleum in large quantities stimulated inventors to experiment with different ways of using it. The following extracts, taken from "The Report of the Commissioner of Patents for the Year 1863," *House Executive Document No.* 60, 38 Cong., 1st Sess., pp. 23-26, indicate the number and character of inventions relating to petroleum.

The immense development of petroleum, commonly, but erroneously called coal oil, beginning practically in August, 1858, in western Pennsylvania, and amounting in the year 1863, in the United States, to 6,000 barrels per day, or 2,190,000 barrels per annum, of which one-half is exported and the remainder consumed at home, has directed American inventors, within the last three years, to the construction of a large number of lamps intended especially for its consumption. This will best be seen by reference to the number of applications presented to this office during the last three years as compared with the number for the three next preceeding years.

Patents applied for during the year ending—

March 1st, 1859	44
March 1st, 1860	72
March 1st, 1861	77
	193
March 1st, 1862	130
March 1st, 1863	538
December 30th, 1863	155
	623

This oil is rich in carbon and hydrogen, but void of oxygen; and from the excess of carbon evolved, one main object to be attained was to command the oxygen of the atmosphere to effect that degree of combustion most productive of illumination, and thus at once economize oil, obtain a pure white flame, and avoid smoke and unpleasant odor. To this end various devices have, within the last three years, been patented.

1. The deflector previously in use has been materially altered in form, and in some lamps two or three deflectors within each other, used in throwing successive currents of air against the flame above each other.

2. The flat wick has been generally adopted, being more simple and exposing a larger surface of flame to the air.

3. The glass chimney previously in use to shield the flame from currents of air and to increase the draught and consequent quantity of oxygen to the flame, has largely maintained its place. In some models the chimney has been extended below the flame, and shortened above it; in others, the deflector and chimney have been united; and

in others oval chimneys, either of glass or mica, have been made to correspond with the flat flame.

4. The liability of glass chimneys to break from unequal heat, or accident, as well as their expense and general inconvenience, have made it a *desideratum* to construct a good hand-lamp without a chimney, for which purpose many patents have been granted, of very various forms, with more or less success. Some have used numerous very small wicks; others very thin wicks; others have made, in effect invented, metallic chimneys below the flame. To keep the oil in lamp as cool as possible, so as not to throw off more gas than the flame can consume, various non-conductors have been interposed between the burner and the reservoir, such as porcelain, glass, gypsum, wood, gutta percha, &c. Other inventors have affected the same object by isolating, in a great measure, the burner, by resting it on slight metallic points, &c. In a few examples, oxygen has been ingeniously and effectively, but rather expensively, supplied to the flame by a revolving fan-wheel propelled by machinery enclosed within the base of the lamp.

5. Other improvements have been introduced, removing the chimney vertically, horizontally, or obliquely, so as conveniently to turn and light the lamp or supply it with oil; others effecting the same objects without removing the chimney at all. Mica and glass deflectors have been used instead of metallic ones, and glass cylinders surrounding the flame and below it, so as to avoid the shadow round the base of the lamp.

6. The necessities and demands of our great railway system have originated improvements in locomotive *head-lights,* so as to obviate the effect of motion of the engine and counteract strong currents of wind; also, in *lanterns,* so as to avoid the extinguishment by sudden motions, vertically or laterally, and so that the lamp may be easily fastened in or removed from the case, and the wick regulated without removal therefrom.

7. Finally, great improvements have been made in the machinery for the manufacture of every part of the lamp, so that for a few cents a good and convenient and even elegant lamp for burning this cheap and highly valuable native oil is now within the reach of every family in the land.

. . . . .

The refining of petroleum is now a large and increasing industry. The inventions in this department [Chemical Processes, Manufacture and Compositions of Matter] relate principally to the construction of stills and condensers. These are now constructed in such a manner as to make the operation of distillation continuous, and so as to separate at one distillation the various products which are derived from petroleum. A new manufacture has grown during the past year from the waste products or residuum of petroleum. A valuable oil, to be used as a vehicle for paints, has been obtained from what is known as the acid residuum; and a lubricant is made from the tarry residuum of the still. The proper treatment of these residuums is well worth the attention of inventors.

The demands for the different products from petroleum have not kept pace the one with the other. The oil, of medium density, commonly known as illuminating oil, bears the highest price. It is therefore desirable that inventors should direct their attention to the lighter oils, known as carbon spirits, or naphtha, and to the very dense and thick products. To some extent the light products are now used by varnish-makers and others as substitutes for spirits of turpentine. The heavy and thick oils containing paraffine and similar compounds are used as lubricants. But a sufficient demand for these must be created by the inventors in finding new applications for them, or new modes of transporting them into more useful products. A valuable application of the heavy oils has been found in their use as a substitute for ordinary tanner's oil for dubbing; thus supplying a much felt want.

. . . . .

The large commerce in petroleum has made a demand for barrels and tanks. The liquid hydrocarbons easily leak through the ordinary wooden casks. To make an oil tight cask has therefore become a problem of considerable importance, since the leakage from oil casks not only occasions great loss of oil, but makes the danger from fire very great. Fourteen patents have issued for more oil tight barrels, besides as many more for tanks and cans. Some of these are for metal casks; others for a common wooden cask or tank, with sheet metal lining; but the larger number aims at producing a composition with which to coat or saturate the staves, to make them impenetrable to oil. The difficulty of finding such a composition is increased by the fact that there is generally a small quantity of water diffused through the oil at the time it is put into the barrel, which gradually collects at the bottom, thus making it necessary to have a composition that is impervious to, and insoluble in, both petroleum and water.

122. Pennsylvania Petroleum in Russia

Petroleum from Pennsylvania was introduced into Russia in 1862 and by 1863, it had become the leading illuminant. The following account was written on December 31, 1863, by W. E. Phelps, U. S. Consul at St. Petersburg, and appears in the *Report on the Commercial Relations of the United States with Foreign Nations for the Year Ended September* 30, 1864, p. 423.

During the year a great change has taken place in the material used for lights—a matter, of course, of great importance in this latitude, where in winter there are scarce six hours of daylight. Formerly tallow, in its various preparations, was wholly relied upon; now the use of kerosene is fast becoming universal. There have been various oils brought here from Scotland, Bremen, and other places; but they are unable to compete with the American oil, being much inferior in quality and equally expensive. The American lamps are also the most popular.

Kerosene not being mentioned in the Russian customs list, was at first classed with other burning oils, and charged one rouble per pood duty. Then, owing to the great demand, a temporary arrangement was made, by which the stock for the present winter was cleared at twenty-five copecks. The imperial ministry have now fixed the duty at fifty copecks per pood, or about seven and one-half cents per gallon.

Petroleum has been discovered in some parts of southern Russia, particularly in the neighborhood of Kertch; but whether it can be profitably worked has not yet been demonstrated. Indeed, it is the opinion of those best informed that such are the difficulties of interior transportation, and the lack of proper facilities for working and refining, that unless the government should make a heavy protective distinction in its favor it will be impossible for it to compete with American oil for many years. One thing is now certain, kerosene has been fairly introduced into Russia. The people are becoming accustomed to it, and they will not do without it in the future. It is, therefore, at least safe to calculate upon a large annual increase of the demand from the United States for several years to come.

123. Sale of the Blood Farm

Speculation in oil land and stocks increased tremendously during 1864 and 1865. The sale of the Blood farm on Oil Creek in April, 1864, for $550,000 eclipsed all real estate transactions up to that time; it was the largest amount of cash that had ever been paid for any oil land. The following article about the sale of the Blood farm appeared in *The Venango Spectator,* Franklin, April 27, 1864.

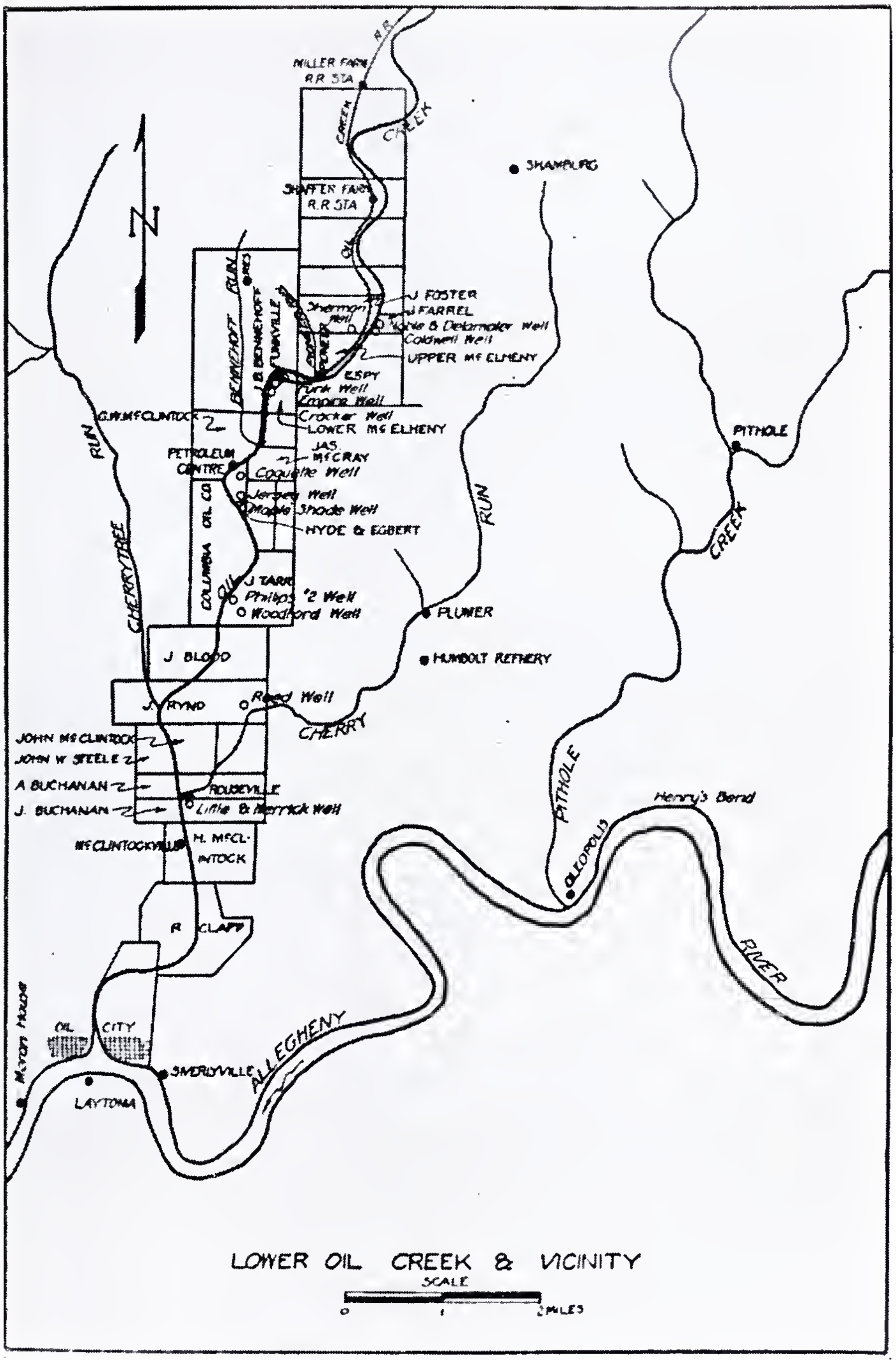
We have previously noted some heavy operations in the purchase of oil lands and interests in wells, several of which involved large sums. As a general thing these operations have partaken more of the cool, deliberate character of ordinary business transactions than of mere speculative investments. We have now to notice a sale of more than usual magnitude, even for the oil regions.

Last week, the Blood Farm, in the heart of the best territory on Oil Creek, was sold for the sum of five hundred and fifty thousand dollars to S. M. Seely, Esq., of New York City, who thus secures the fee simple interest of the entire property.

The Farm contains about four hundred and fifty acres, two hundred of which are good cleared land fit for cultivation, a fine dwelling house and large barn, with several smaller buildings. Of course we need not tell the reader that the agricultural value of the farm is nothing in comparison with this investment of over half a million. The value is in the oil already producing and in prospect—a value far greater than the amount paid, large as it is, which we shall show by facts and figures before we close this article.

This property was purchased by Mr. Seely from the original owner direct, and was, we think, the only piece of oil territory on the creek not in the hands of speculators, and held at prices three or four times as high in proportion to their value, as the price paid for this tract. There are now on the farm some thirty wells, mostly productive, and yielding from four hundred to seven hundred barrels of oil daily. Eleven new wells are being sunk, which will probably increase the production one-half or more. With the exception of three or four other tracts, the Blood Farm is the most productive in the oil region. The Bushnell & Duffield well, on this farm, commenced flowing in January, 1862—more than two years ago—and is now flowing at the rate of thirty barrels a day.

We have estimated the entire oil product of the farm at 400 to 700 barrels a day—an estimate which we are satisfied is within bounds. Taking the smaller figure as the yield and six dollars per barrel at the wells, as the price of oil, we have a daily cash yield of twenty-four hundred dollars, or a yearly yield—counting 300 working days to the year—of *seven hundred and twenty thousand dollars*. The reader who cares enough to take up his slate and make figures upon the data we have given will find that this Blood Farm is now paying 65 per cent interest on a million of dollars, or 130 per cent on the purchase money.



This map is taken from Giddens, *The Birth of the Oil Industry*. Used by permission of the author and the Macmillan Company.

Add to this the certainty of a large increase of production, and the amount of the purchase money though enormous to small speculators, and beyond ordinary operations, even in oil, is a lucky strike for its present owner. It is a big thing and a sure thing.

We have thus gone somewhat in to the details of this transaction in order to show our readers abroad the great value of real oil territory, and how half a million can be put into a single farm in this county and prove to be the most profitable investment of the day.

124. THE OIL REFINING BUSINESS IN PITTSBURGH

The extent to which Pittsburgh had become a refining center is indicated by this article from The Quarterly Trade Circular, which was published in *The Pittsburgh Evening Chronicle,* August 19, 1864.

The Quarterly Trade Circular for August, in an article on oil refining in Pittsburg says: The whole number of refineries in the city is fifty-eight, and the total capacity per week equal to 26,000 barrels. The value of the real estate, buildings, machinery, etc., etc., used for the carrying on of the refineries, is estimated at $2,533,500. The total number of barrels of oil refined per annum was returned at 716,500, estimating from the figures of the year last past, which would produce 537,380 barrels refined, and at the rate of only $16 per barrel or forty cents per gallon, an average below the rates of that year, gives the value of that branch of the petroleum trade of Pittsburg, at $8,599,224. If the amount refined during the current year should equal the amount returned from the various refineries for the year of 1863 and 1864, and present rates, or near them, be maintained, as it is probable they will, the value do not include benzole, residuum, nor any of the products of the refineries except refined and lubric oils. The number of hands actually engaged in refining is four hundred and ninety-six, but there are in addition a larger number of employees engaged in the hauling and transporting of oil, also, many who are at certain seasons temporarily employed. The aggregate wages of these regularly employed in refining is $350,000 per annum.

125. SPECULATION IN OIL STOCKS IN PITTSBURGH

With the expansion of the market for petroleum at home and abroad, the extension of the railroads into the oil region, the increase in the price of oil, the spread of stories about "Coal Oil Johnny", the publicity given to the fabulous profits derived from oil, and the continuous process of opening up new oil territory, an unprecedented era of speculation in oil lands and stocks began in 1864 and continued almost to the end of 1865. The following article taken from *The Pittsburgh Evening Chronicle,* August 26, 1864, reflects what was beginning to happen in Pittsburgh.

One of the most singular features of the times is the extraordinary demand that has sprung up for oil stocks. If this demand were confined to the stocks of producing companies we could understand it, but applying as well to the stock of organizations which have not yet commenced boring even, as to the dividend paying shares, we are at a loss to comprehend it. Indeed such is the rage for stocks of this character now here that sales are common in companies where the stock certificates have not yet been issued or the transfer books opened, and instances are not uncommon where stock has been sold at an advance of two hundred per cent even before the company was organized! Of course in such wild speculation as this some one is bound to get "burnt." Many of these organizations will doubtless pay in the end, it may be that some of them, like the "Columbia," "Dalzell," "Maple Shade" and other producing companies, will more than realize the expectations of the stockholders; but it is equally apparent that many more of them are gotten up wholly for speculative purposes, and that in a year from now their shares will not be worth more than the paper on which they are printed. In view of this fact too much circumspection cannot be used in making investments of this character. In purchasing the stock of producing companies, in which regular dividends are declared, the buyer does not run so very much risk, but when it comes to the stock of companies which have not yet got fairly into operation, it is different, and great caution should be exercised. The value of an organization of this kind can generally be judged from the character of the men at the head of it. If you find a company with men of wealth, character and integrity at the head of it you may rest assured that, however the enterprise may turn out, it will be prosecuted honestly and for the benefit of the stockholders; while, on the other hand, where you find an organization under the control of financial sharpers, ever on the lookout for the easiest way to "make an honest penny," you may set it down as a kite-flying concern gotten up for the personal emolument of its originators, who, as soon as they have got things fairly started, will sell out at a handsome profit, leaving their dupes to shoulder the loss. For the benefit of those interested we give below the price at which the different oil stocks now offered here are quoted. Here is the list:

	Par Value	*Price*
Lucesco	25	27
North American	10	7⅞
Dalzell	10	15
Allegheny and Pittsburgh	10	14
Iron City	5	4
Horse Neck	2	5
Stella	5	4
Federal	8	4
Whitely Creek	5	4
Acme	20	15
Fayette	5	4
Story	5	2½

There are various other stocks offered here, but the above are those on which most is doing. We understand that there are some half a dozen additional companies in process of organization whose stock will be put afloat one of these days. Some of these are located in Greene county, and the others in Ohio and Virginia. Late explorations in the oil regions of the latter State, tend to enhance the value of the lands held there, and if one-half what we hear of the prospects and indications in the district be true, those companies operating there will make a nice thing of it.

126. The Cherry Run Petroleum Company

Little or no effort had been made prior to 1864 to drill for oil in the valleys formed by streams emptying into Oil Creek and the Allegheny River. During the summer of 1864, William Reed started drilling a well on the Rynd farm two miles up Cherry Run which flowed into Oil Creek from the east about three miles above Oil City. A successful flowing well was completed on July 18, 1864, and it precipitated a wild scramble for land along the entire length of Cherry Run. Within a short time the Cherry Run Petroleum Company was organized. The following account is taken from *The Oil City Register,* November 24, 1864.

The sudden rise of the stock of this Company, from seven dollars per share to thirty-two dollars has almost taken the breath from many, who a short time since viewed anyone who made an investment on Cherry Run, as only a fit subject for a lunatic asylum. It will be remembered that this Company owns a tract of 400 acres of land on Cherry Run between the Smith Farm and the Humboldt Works. Their lands embrace the whole width of the valley and takes in a good portion of the hill bounding the valley. The fact of the Company having concluded to give out a few leases, not only caused an excitement here, but sent their stock up a kiting in the East. During our visit to Philadelphia a short time ago, this stock was dull at five dollars, the par value being ten dollars per share, and the capital stock $500,000. We look upon this Company's lands as the most valuable of any in the Oil Region that is undeveloped. As the Company has never declared any dividends, this rise in the price of their stock is based wholly upon the value which their territory is known to possess for the production of oil. This result shows how great is the public confidence in their worth, and is highly complimentary of the sound judgment of the President, Mr. Cornelius Curtiss, who made the original purchase over two years since, with an abiding confidence in its merit, as well as the management, for the manner in which this result has been brought about. We expect to see this Company's stock rival that of the famous Columbia Oil Company's.

127. THURSTON'S OIL STOCK EXCHANGE, PITTSBURGH

As a result of the speculative craze over oil stocks in Pittsburgh, a number of persons opened auction rooms where buyers and sellers could congregate and transact business. The owner of the most important auction room and probably the "father of the modern oil stock exchange" was George A. Thurston. His exchange on Fourth Street was formally opened on November 11, 1864. The following description is taken from *The Pittsburgh Evening Chronicle,* November 26, 1864.

Next to keeping a hotel, managing a theatre, or owning a flowing "ile" well, we know of nothing now which pays like running a "Stock Exchange." At least this was the conclusion we arrived at last night after a visit to Thurston's Stock Exchange, on Fourth Street. It was not quite half-past seven when we dropped in, yet even then every seat was occupied, and the back part of the room was fast filling up. Towards eight the rush was perfectly astonishing, reminding us, somewhat, of the theatre on Thanksgiving night and "sick" like holiday occasions, and the rapidity with which the door-keeper took in the postal currency was a caution. The room was not only filled but literally packed with people. Every available feet of space was occupied, yet, in the language of a box office puff, so great was the anxiety to get in that hundreds were turned away unable to gain admittance. Thus stood matters when Mr. Thurston ascended the platform and announced that the proceedings of the evening would now begin. There are numbers of our readers, we feel satisfied, who know comparatively little of the manner in which business in the Stock Exchanges is conducted, so for their special edification, we will give a brief sketch of the proceedings as they transpired last night.

We have already got Mr. Thurston on the platform, from which he takes up a list of the stocks usually offered for sale in this market, namely, those of the different city banks, railroads and insurance companies, with the stock of such oil companies as either have their headquarters here or whose stock is partially owned in this city. The National and State securities are also embraced in the list, and our city and county bonds are also called, though of late we have observed but very few transactions in either. Beginning at the top of the list, Mr. Thurston calls out the name of some particular stock, repeating it twice, and then asking, "Are there any sellers?" Those having the stock for sale reply according to the quantity they desire to sell and the price they want for it. Thus one man cries out, "I will sell five hundred shares at $25." Another says, "I will sell one hundred shares at $24.50." Another adds, "I will sell fifty shares at $24.25," and so on until the sellers have had their say. If the terms are too high to suit the notions of the buyers there is a pause, which is broken perhaps by someone crying out "I will take 1,000 shares at $24.25." Another offers to take five hundred at $24.50, and so on. Sometimes, however, the offers to sell are accepted the moment made, and when the buyers think they have a good thing, cries of "I'll take that," "That's mine," and kindred expressions are heard from all parts of the room. As soon as an offer to sell is accepted, Mr. Thurston calls for the names of the parties to the transaction, which are given aloud and entered on the books. Thus every one present knows precisely what each particular stock brings, and, though deception may sometimes be used, the sales, as a general thing, are bona fide, and the price at which any stock sells may be regarded as its value in the market.

The Exchange has not been long enough in operation yet to distinguish the "Bulls" from the "Bears," but occasionally a little incident transpires which go to show that the sales are not altogether free from these influences. The "Bulls" and the "Bears" have directly opposite roles to play. It is the part of one to put up stocks as much as possible, and of the other to keep them down, and so as they accomplish their purpose they are by no means scrupulous as regards the means by which it is to be done. We noticed a few little passages between the "animals" last night. It did not amount to much, to be sure, but it was still quite enough to indicate what they may do, with a little more time for training. When parties want to run down a particular stock, they either reply to the offers to sell, by tendering ridiculously low prices, or offer the stock themselves at a figure so far below what it ought to bring, that nervous holders become frightened and are glad to sell at any price. Thus, on the call of a certain stock last night, the first offer to sell was at $3, but in a few minutes it was brought down to $1.10, chiefly through the means above described. As the operators become experienced there will be more of this work carried on, and timid holders who do not understand the thing, will doubtless suffer in consequence. Such men will do better to give the carriage of their sales to the regular brokers, as they will be less likely to be imposed upon by devices of this character.

The sales last night, it will be seen by the report we give below, foot up the enormous figure of 23,657 shares. The stock most in demand was "Ritchie," which, though only organized a day or two ago, went off like hot cakes. "Ritchie" will either prove a "big thing" or a great disappointment for those interested. A number of the stockholders firmly believe that it will pay seven per cent, a month, while others declare that it cannot pay less than ten per cent, and would not sell their stock at any price. It is no wonder, with, such a feeling abroad, that sixteen thousand shares of this stock changed hands last night, and the buyers were willing to go on had there been more of it offered. "Tarr, Story and Cherry Run," "El Dorado" and "Shirk Island" were also in demand, and sold well. Blood Farm and Ohio brought $2.00. This company, we understand, will declare a four per cent dividend on the 1st, out of the profits of the last month. But our readers will find the prices in full below. The extent of the sales last night shows the extraordinary rage for speculation abroad; but, to get a fair idea of the prevailing spirit, the Exchange itself must be visited. It is open every night, and it is well worth the quarter you pay for admission to see the proceedings. Here are last night's quotations:

Thurston's Exchange

40 shares	Monongahela Insurance Co.	$35.00
250 shares	Blood Farm, Ohio	2.00
30 shares	Dalzell	9.75
50 shares	Eldorado	2.20
25 shares	Fleming & Blood Farm	3.87
50 shares	Linden	4.95
62½ shares	Merchants	.45
109 shares	National	1.50
900 shares	Ohio Valley	2.05
150 shares	Phillips	6.50
100 shares	Rynd Farm	6.10
13,000 shares	Ritchie	1.40
3,000 shares	Ritchie	1.37½
200 shares	Tarr, Story & Cherry Run	1.37
2,000 shares	Tarr, Story & Cherry Run	1.35
1,000 shares	Shirk Island	.50
100 shares	Eldorado	2.20
250 shares	Eldorado	2.22
300 shares	Ross	1.35
100 shares	Tarr, Story & Cherry Run	1.36
700 shares	Tarr, Story & Cherry Run	1.37
50 shares	Phillips	6.25
200 shares	Cherry Run and Blood Farm	1.20

128. The Columbia Oil Company

In the rush of 1859, some Pittsburghers purchased the Story farm on Oil Creek for $40,000; they leased plots to various operators and secured a number of producing wells. Discouraged by the low price of oil, they decided to change into a joint stock company and organized the Columbia Oil Company in May, 1861. It subsequently proved to be one of the best paying petroleum companies in the oil region. The following account of its financial success appeared in *The Pittsburgh Evening Chronicle,* December 28, 1864.

In the Quarterly Trade Circular, just issued, we find an article on Oil Stocks, in which the following interesting statistics touching the formation and growth of the Columbia Oil Company are given. The writer says: "The Columbia Oil Company was originally a firm under the style of Ritchie, Hartjio & Co., consisting of some seven persons, who purchased the Story farm, containing nearly five hundred acres, at the first outburst of the petroleum development in Venango county, for a few thousand dollars. In 1862 the Columbia Oil Company was organized, and purchased the Story farm from the firm of Ritchie, Hartjio & Co. for $128,000. The company was organized with a capital of $200,000 divided into 10,000 shares, of the par value of twenty dollars each. These shares sold in the market, during 1862, for from two to ten dollars. The shares gradually increased in value until, in March, 1864, they were worth one hundred and twenty-five dollars each. From the time of the organization of the company, in 1862, until March, 1864, dividends had been paid on the stock to the amount of $300,000. In April of 1864, a further dividend of $80,000; in May, of $100,000; and in June of $100,000, were paid, being $570,000, or nearly three times the original value of the stock. In June of 1862 the stock was enlarged; that is, the original shares were called in, and fresh stock of the par value of $50 per share, in the ratio of five shares of new stock for each original share, being issued to the holder thereof. From June until August the new stock advanced in price, until, in the latter month, it was worth one hundred dollars per share, or double its par value; and the stockholders had received dividends in July and August to the amount of $225,000. The dividends for September, October, November and December amounted to $400,000, being to parties who have held their original stock a payment of $120 a share in dividends, in eighteen months. The person who paid one year and a half ago the original value of $20 for 100 shares, and has held his stock, has received $12,000 dividends up to December, and from the profits on the increase of capital made in June last, obtained an accession to his stock of four hundred shares; which shares, although of fifty dollars par, are now worth, with his original 100 shares, $42,500, making a clear profit of $54,500 in eighteen months.

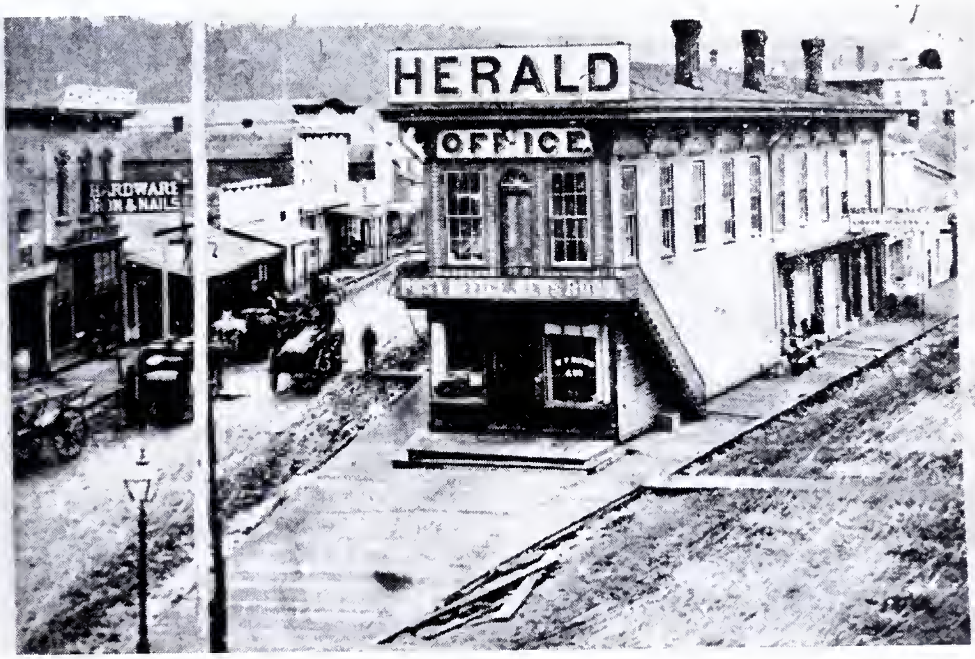
129. U. S. NAVY EXPERIMENTS WITH PETROLEUM AS A FUEL

As early as 1864, U. S. Navy engineers were experimenting with petroleum as a substitute for coal in naval steamers. The results of their efforts are summarized by B. F. Isherwood, Chief of Bureau of Steam Engineering, in a report dated November 28, 1864. See "Report of the Secretary of the Navy for 1864", *House Executive Document* No. 1, 38 Cong., 2 sess., p 1096. Government Printing Office, Washington, 1864.

Nearly all the various coals of the seaboard states have been the subject of careful experiment, to ascertain their relative value for naval purposes. A board of engineers has also experimented with petroleum as a substitute for coal in naval steamers; but while the results were

COLUMBIA CORNET BAND

The Columbia Oil Company, which was organized in May, 1861, was one of the largest oil companies in the oil region. Not only did it pay enormous dividends but provided model dwellings for its workingmen, a library, and other facilities. Famous throughout the oil region was the Columbia Cornet Band which played for all kinds of occasions. Among others, it played for President Grant on his tour of the oil region in 1871. Mather Collection, Drake Museum.



THE TITUSVILLE HERALD OFFICE

The first daily newspaper in the oil region. From its files, which begin in 1865, much is learned about the development of the oil industry. Mather Collection, Drake Museum.

very favorable, the further development of this important substance as a fuel has been prevented by the discovery that when exposed to the air of a confined space at summer temperature, it gives off, even through the open bunghole of a barrel, a gas which, when mixed with atmospheric air, becomes explosive and detonates with the force of a gunpowder. Until a practical remedy for this is found, it is manifestly useless to experiment upon the best form of apparatus for burning it.

130. ANTWERP AND PENNSYLVANIA PETROLEUM

The following account was written on May 26, 1865, by A. W. Crawford, U. S. Consul in Antwerp, and it appears in the *Report on the Commercial Relations of the United States with Foreign Nations for the Year Ended September* 30, 1865, p. 238.

Petroleum has been the principal article of import from the United States, and Antwerp still takes the lead of the European markets in this branch of trade. The imports of this article this year have doubled those of the preceding, and are as follows: In 1863, 115,000 barrels; in 1864, 230,000 barrels; increase 115,000 barrels.

About ten per cent of the amount imported in 1864 was crude oil. Prices of refined ranged higher in the summer than in the latter part of the year. Speculation in the spring carried prices as high as 84 francs for oil to be delivered in the winter. Subsequently prices declined, and in the middle of winter, when consumption was most active, they ruled as low as 65 to 66 francs. This abnormal situation can only be attributed to excessive speculation in the article, an evil which will probably ere long work out its own remedy.

The consumption of petroleum in Europe generally, during 1864, has not increased more than one-eighth over that of 1863. In some countries it has remained stationary. In this country, however, it has shown a marked increase and also in the south of Germany, while in Great Britain there is no perceptible progress. It is probable that our market will continue to be the great emporium for the article. No neighboring port possesses such facilities for warehousing and keeping the oil. This port has acquired great reputation abroad; the Germans, Dutch, &c., are accustomed to buy their supplies here, and they will doubtless receive permanent customers. Importers having, however, generally lost money, they will be less eager to order fresh cargoes this year; but I believe that our port will receive a good deal of consignment, or cargoes purchased afloat in the channel. Our stock of refined petroleum on the 31st December was 31,000 barrels.

131. The Roberts Torpedo

On November 15, 1864, Colonel E. A. L. Roberts filed an application for a patent to use a torpedo as a means of increasing the production of oil wells, and the patent was subsequently granted. In January, 1865, Colonel Roberts made the first public experiment with his torpedo in the Ladies' Well on Watson Flats below Titusville. As a result of this successful demonstration, many infringements were made upon Roberts' patent and he became involved in a long series of lawsuits. Many of those sued contended that they had invented the idea of using the torpedo in an oil well. The following account, which definitely and officially credits Colonel Roberts with making the use of the torpedo practical, is taken from a report of the Examiners-in-Chief of the Patent Office dated July 10, 1869.

The wonderful development of petroleum in this country, led to much scientific speculation and many learned theories and disquisitions upon the subject of its origin, the mode and manner of its deposit, and the best process of seeking out and forcing it from its secret caverns and retreats. How much the learned were at fault is a matter of familiar history to the oil regions.

Nearly all the great facts leading to important results, were obtained by common practical men, working with their own brains and hands, and following up experiment by experiment, only rewarded by an occasional success.

The oil-producing community was highly excited, and every mind was on the alert for anything that gave promise of striking oil, or of increasing its flow, and every successful experiment was flashed over the region by electricity.

The eccentric conduct of some wells, their intermittent and uncertain flowing, the steady increase or sudden gushing under pumping, removal of tubing, &c., led many minds to contemplate the plan of shaking up the bowels of the earth with powerful explosions to make her give forth a more certain generous yield.

We find by the evidence, and especially by the statements of Reed, that this theme was much talked about and speculated upon as early as 1861, and doubtless much earlier. In all probability, hundreds could be found who had thus early formed plans, and in some instances resorted to experiments for the purpose of subduing these fickle and refractory wells, by the use of gunpowder.

Yet no one seems to have reduced the matter to an acknowledged practical successful operation, until Roberts went, with his designs and invention, from the Army of the Potomac, and in January, 1865, appeared at Titusville with his torpedoes.

Nothing could be more satisfactory than the evidence in this case establishing the state of the art at that date. No successful plan or process was known or practiced in the whole oil region.

He made himself a bore and nuisance, even in that land of bores and nuisances, by his persistent attempts to explain and introduce his new invention.

But nobody was making torpedoes; nobody was promising any success from torpedoes; nobody had faith in torpedoes; nobody was using or would use torpedoes.

Torpedoes would not go off, and his first adventure in the oil region was a failure, in which he lost his time and about $200 borrowed of his brother.

It is hardly credible that Reed's torpedoes had proved an acknowledged success two years before this time.

But Roberts, though meeting with nothing but rebuffs and rejections of his proffered services with his new device for "increasing production of oil," was not wholly discouraged. He returned again to the charge, and, as might have been expected, his first decided success set the whole oil region in a blaze.

His torpedoes were immediately demanded on all hands; thousands were disposed of, and his method became one of the established features in oil production.

The results so far have added millions to the wealth of the oil men, while the prospective benefits are immense beyond calculation.

These facts are apparent. No one can dispute with him the first successful introduction of the present system of exploding torpedoes in oil wells, and *no one does*. Of course, when the egg was set on end, many a man could exhibit broken shells. But the fact is patent that no man was publically known to have done it, while *Roberts did it*.

No sooner had he secured his patent and got the matter in the full tide of successful operation, than other claimants came forward and were put in interference.

132. Description of the Roberts Torpedo

The following description of the Roberts torpedo is taken from the *New York World*, February 25, 1865.

It may not be generally known that three-fourths of all the oil wells sunk, on an average, are non-producing; some from not striking the oil-veins or pockets; some from becoming clogged up by paraffine and other sedimentary matter, and others from unknown causes. This invention consists of a cylindrical tube four feet in length, made to fit the bore of the oil well, which is filled with gunpowder, lowered by a wire into the well to any desired point, and is exploded by percussion, induced by an iron weight or follower, which is sent down the wire after the torpedo is lowered. The torpedo on being exploded, drives out the paraffine or other coagulated matter, and at the same time opens fissures into the solid rock; very often leading into new veins or wells of oil.

133. First Successful Experiment with the Roberts Torpedo

The following statement, concerning the use of the Roberts torpedo in the Ladies' Well on Watson Flats, is taken from a publication entitled *Articles of Association, By-Laws, and Prospectus of the Roberts Petroleum Torpedo Co.,* New York, 1865. A copy is in the Drake Museum.

TO ALL WHOM IT MAY CONCERN:

We, the undersigned, were present, and witnessed the explosion of an 8 lb. torpedo, in the Ladies' Well, on the Watson Flats.

The experiment was successfully applied by Col. E. A. L. Roberts, and fired with unerring precision at the depth of 465 feet, with most gratifying results, as the well flowed paraffine, oil and water for some ten to fifteen minutes after, and left a most satisfactory indication of gratifying results.

We take pleasure in recommending Col. Roberts' ingenious invention to the favorable notice of the public.

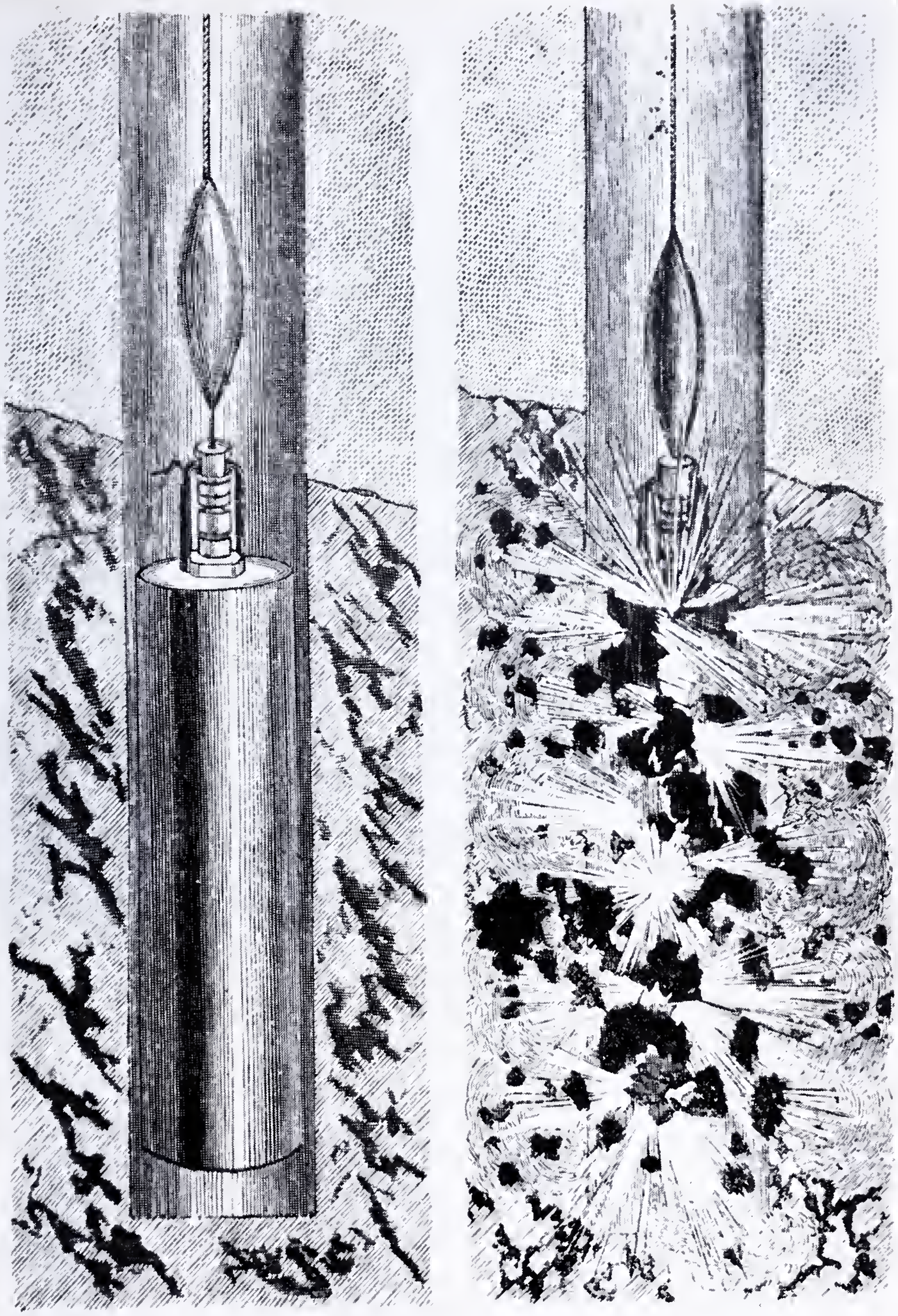
E. Mills, Agent Ladies' Well.
Wm. Wrigley, of Action Oil Co.
D. A. Stowell, Coudersport Oil Co.
H. H. Kelley, Vice President P. O. C. P. Co.
E. Mills, Jr., of the Mills Oil Association.
A. D. Newell, Director of the Central Co.
Wm. D. Newell, M. D., C. P. Co.

Titusville, Jan. 21, 1865.

134. Hauling Petroleum

The following account, taken from the *Oil City Register,* January 26, 1865, illustrates the problem involved in hauling oil to the nearest railroad and the number of teams it required to haul oil just to one point.

But few persons realize the extent of the business carried on in the Pennsylvania Oil Regions, unless they visit here and judge for themselves. The number of teams required for the transportation of pe-



Before Explosion.

After Explosion.

THE ROBERTS TORPEDO

Taken from Henry's, *The Early and Later History of Petroleum, with Authentic Facts in Regard to Its Development in Western Pennsylvania.*

troleum from the wells to the different shipping points in seasons when both river and creek are low, and navigation suspended, is immense. For several days during the recent good order of the roads, there have been an almost continuous train of wagons loaded with oil, traveling on the road from Cherry Run to Franklin, a distance of over twelve miles. Just think of it, reader. A train of wagons loaded with the product of one single township in this State, over twelve miles in length. And this too only from a portion of the producing locality of this same township. For it is reasonable to suppose that the amount of oil shipped to the Shaffer Farm, and other railroad points, is equally as great. The load for these wagons is generally seven barrels, and the weight of a barrel of oil is about 330 pounds. In view of this immense daily traffic carried on by means of wheeled vehicles, is it any wonder that our roads here soon became impassable? No road could long stand such wear and tear, without constant extensive repairs. If, therefore, our roads, and even the main street of Oil City, which is the great thoroughfare, should appear almost impassable to the denizens of other places, they must take into consideration that a good reason exists for it.

135. OIL COMPANIES IN 1865

This article appeared in *The Venango Spectator,* February 22, 1865.

The following table shows the length and breadth of the oil mania, it being a list of the number of oil companies at present in existence, where located and their aggregate capital:

Place	*Companies*	*Capital*
Philadelphia	286	$164,475,000
New York	121	128,950,000
Pittsburgh	63	21,610,000
Boston	14	6,800,000
Baltimore	8	2,250,000
Brooklyn	3	1,250,000
Cincinnati	4	1,150,000
Erie, Pa.	2	400,000
Chicago	2	350,000
Cleveland	3	930,000
Other places	18	9,400,000
Now forming	21	19,000,000
Total	543	$356,565,000

136. JOHN WILKES BOOTH'S INVESTMENTS IN OIL

The following testimony, relating to the investments of John Wilkes Booth in the petroleum business, was given by Joseph H. Simonds before the Military Commission appointed to try those charged with Lincoln's assassination. It is taken from the *Assassination of President Lincoln and the Trial of the Conspirators,* compiled and edited by Benn Pitman, Moore, Wilstach & Baldwin, New York and Cincinnati, 1865, p. 45.

I was acquainted with J. Wilkes Booth in his lifetime, and was his business agent, particularly in the oil region. I did some little business for him in the City of Boston, but it was very little, and was entirely closed up before I left there.

Mr. Booth's interest in the oil speculations was as follows: He owned a third undivided interest in a lease of three and a half acres on the Alleghany River, near Franklin. The land interest cost $4,000. He paid $2,000—that being one-half of it. He also purchased, for $1,000, an interest in an association there owning an undivided thirtieth of a contract. That is all that he ever absolutely purchased. There was money spent for expenses on this lease, previous to his purchase of the land interest. He never realized a dollar from any interest possessed in the oil region. His speculations were a total loss.

The first interest he acquired in any way was in December, 1863, or January, 1864. I accompanied him to the oil regions in June, 1864, for the purpose of taking charge of his business there. The whole amounted invested by him in this Allegheny River property, in every way, was about $5,000, and the other investment was about $1,000, making $6,000 in all.

His business was entirely closed out there on the 27th of September, 1864.

One of the conveyances was made to his brother, Junius Brutus Booth, which was without compensation; but a consideration was mentioned in the deed. The other transfer was to me, and it was done in consideration of my services, for which I never received any other pay. There was not a dollar paid to J. Wilkes Booth at all for these conveyances, and he paid all the expenses of the transfer and conveyances.

137. JOHN WILKES BOOTH IN THE OIL REGION

Alfred Wilson Smiley went to Franklin in 1863 to work for the commission firm of Whitcomb and Standard. While he was living there, he became acquainted with John Wilkes Booth. Smiley's recollections of Booth are told in his book, *A Few Scraps (Oily and Otherwise),* The Derrick Publishing Company, Oil City, 1907, pp. 77-82, 88-90.

It was during the summer of 1864 that I got acquainted with John Wilkes Booth, who on the evening of the 14th of April following assassinated President Lincoln in a Washington theatre.

Our first acquaintance was due to the fact that for a short time we occupied the same room at the United States Hotel.

H. B. Smith, a clerk in one of the railroad offices, and myself had a double room at the hotel, that is, a room in which there were two beds.

The hotels were all crowded in those days, and Smith and I, to accommodate the landlord, frequently doubled up to let in some good fellow for a day or two, when not able to get in elsewhere.

On this occasion the proprietor, W. H. Watkins, had requested us to let in a couple of gentlemen for just a couple of days. The newcomers to our room were John Wilkes Booth and J. H. Simonds, who in the meantime I had been introduced to. Booth and Simonds, instead of staying there only a couple of days, remained there for about ten days, when they secured rooms at Mrs. Webber's on Elk Street, but took their meals at the United States Hotel.

Booth was very stylish in his dress, rather good looking, cold in manner towards strangers, but when acquainted, quite social and very polite.

At that time I was rather an expert billiard player and Booth was also a good player, and many games we played, each earnestly trying to beat the other. The result usually being that Booth would insist on paying the whole score and telling me that I could not, in the position I held, afford to play and pay for billiards out of the salary (he supposed) I was getting, and yet at every opportunity he would want me to play with him again, feeling as pleased when I beat him as I was to do so. So in this way I became somewhat intimately acquainted with him and have yet in my possession several little trifling articles which he personally presented to me.

The small silver-headed cane shown in picture of Booth is yet in possession of the writer, having been presented to me by Booth, personally, in the summer of 1864.

Booth was a trained athlete and very strong and quick. I was also pretty strong and active, being then twenty-one years old and did not fear any common man in a rough and tumble. I recall an incident, however, when we both got the worst of the encounter. The occasion was at a dance at the Marshall House, located at the Franklin end of the bridge over the Allegheny river, kept by one Sim Marshall, whither we had gone one evening out of curiosity; as far as the party was concerned our curiosity was entirely satisfied, as we were both entertained handsomely. On the night of the aforesaid dance there were lying near the bridge several steamboats and a number of lumber fleets, and the crowd assembled at the dance was rather a motley one, there being in attendance a goodly number of deckhands from the steamboats and fresh water sailors from the lumber fleets. A row was started (probably accidental), and in our desire to see how things were moving, we crowded in quite close to where the mill was being pulled off.

This attracted the attention of several of the waltzers who, as the sequel will show, decided that our dudish appearance did not warrant our eagerness to get so close to the scene of action. To end the story, they deliberately went for us regardless of how much they soiled our clothes, and after charging several times they threw us out with orders not to return into the house.

We did not request that the order be countermanded, but struck a bee line for up town, with the understanding between us that we would keep our dance experience to ourselves. It leaked out, however, and we were often nagged by our friends.

I am almost persuaded to drop the subject of Booth here. I desire to add, however, that I have many times been asked the question what in my judgment prompted him to commit that horrible crime. My answer now and always has been that "I do not know." Notwithstanding the fact that the presidential campaign between Abraham Lincoln and George B. McClellan, with all the excitement attending those contests, was going on during the short time I knew Booth. I never heard him express himself either way, I never heard him talk a word of politics. I never heard him say a word about any of the leading actors on either side of the Civil War, which was still in progress, or ever make any reference whatever to either the North or the South. He left Franklin late in the fall of 1864 and I never saw him again.

. . . . .

Quite early on the morning of April 15 I was sitting in the ticket office at the railroad station chatting with my old land partner, Smith, who was a first-class telegraph operator. He was busy selling tickets for the early train out, when suddenly he turned and excitedly asked me if I had heard what was going over the wire. I replied that I had not been paying any attention to what was going and asked him what it was. He turned pale and replied: "My God, Smiley, President Lincoln was shot last night in a theatre in Washington by John Wilkes

Booth, a theatrical performer. Can it be possible that it is the John Wilkes Booth that was here last summer that we all knew so well?"

Smith went to the key and asked some one if the report was correct. Meadville office confirmed the report that it was too true. By this time the news had been received at the Western Union office up town and great excitement prevailed, as many Franklin people had known Booth when there the previous summer.

I had gone to the station to take the early train for Union City. I changed my mind, however, and did not leave Franklin for several days.

The excitement was intense, and every one who had been acquainted with Booth, myself included, were closely watched and questioned.

A day or two afterwards a secret service officer from Washington appeared in the town. There were many who were equally as well acquainted with Booth as I was and we were all put through a close questioning. The officer, without my knowledge, went through my trunks, examining the contents closely.

138. HOW OIL WELLS WERE DRILLED

One of the best descriptions of the method by which an oil well was drilled was written by J. H. A. Bone. The following account is taken from his book, *Petroleum and Petroleum Wells,* J. B. Lippincott & Company, Philadelphia, 1865, pp. 33-46.

The individual or company intending to bore for oil, either purchases the land in fee simple, or obtains an "oil lease." At the present time the purchase of land in fee simple is mostly effected by companies, the high price put on oil-bearing lands rendering it almost impossible for individuals to obtain a tract of any considerable dimensions.

Of the tract thus purchased but a small proportion, generally, consists of what is now considered "borable territory," namely, the flat land bordering on the river or creek, and sides of a ravine, or bank of a stream. The remainder is usually high bluffs, valuable in proportion to the amount of wood obtainable for fuel. Some companies work their own property, whilst others grant oil leases to individuals or other companies.

An "oil lease" grants to the lessee a right to bore within certain limits for "oil, salt, or other minerals," the work to be commenced within a given time and "to be prosecuted with all reasonable diligence." If these conditions are not complied with, the land reverts to the owner of the fee simple. Some of the leases granted in 1860 and 1861 were loosely drawn up, and made no provision for the reversion of the property in case of the abandonment of the work, and it is no unfrequent thing, after an old well has been taken by new adventurers and made successful, for the original lessee to make his appearance and claim compensation. If the new proprietors do not comply, an injunction is obtained, and, rather than have the work stopped for months until the case comes up for trial, the victims are generally willing to compromise. In the beginning of the oil enterprises on Oil Creek, as now in some of the new oil territory, the owner of the fee obtained, as compensation for granting the lease, a royalty, or "landed interest," of one-sixth or one-fourth the oil raised, leaving the remainder, or "working interest," to bear all the expenses. At the present time, on Oil Creek, the landed interest obtains one-half the oil on all new leases, and in some very desirable locations a bonus is demanded in addition. It will be readily seen that the owner of the "landed interest" gets the lion's share, receiving half the product without being at any expense for working. The royalty was formerly paid in kind, but is now usually settled by taking half the value of the sale of oil. Should the lessee abandon his adventure he is allowed to remove his derrick and engine.

Having bought or leased a location, the next step is to select the exact point for boring. In this the experienced worker is guided, to some extent, by the nature of the soil and the position of the ground. A new class of people has sprung into existence under the cognomen of "oil smellers," who profess to be able to ascertain the proper spot for boring by smelling the earth. Some of them practise considerable mummery in order to mystify and impress their employers. The "witch-hazel" is also frequently used, the professional locater of wells marching solemnly along, holding in his hands apart with one end of a forked hazel-rod in each. On passing over an oil spring or basin, the point at the junction of the forks suddenly deflects towards the earth, and there the work is commenced. As the witch hazel has the property—according to believers in its powers—of finding streams of water in the same manner, it sometimes happens that water, instead of oil, proves to be the product of the well.

The exact spot being determined, a huge derrick is erected immediately over it. This is a square frame of timbers, substantially bolted together, making an enclosure about forty feet high, and about ten feet at the base, tapering somewhat as it ascends. This is generally boarded up a portion of the distance to shelter the workmen. A grooved wheel or pulley hangs at the top, and a windlass and crank are at the base. A short distance from the derrick a small steam engine, either stationary or portable, is fixed, and covered with a rough board shanty; a pitman rod connects the crank of the engine with one end of a large wooden walking-beam, placed midway between the engine and the derrick, the beam being pivoted on its center about twelve feet from the ground. The walking-beam is a rude imitation of that of a side-wheel steamer. A rope attached to its other end passes over the pulley at the top of the derrick, and terminates immediately over the intended hole. A cast-iron pipe, from 4½ to 5 inches in diameter, is driven into the surface ground, length following length until the rock is reached. In the older wells the ground was dug out to the rock, and a wooden tube put in it. The earth having been removed from the interior of the pipe the actual process of boring or drilling is commenced. Two huge links of iron, called "jars," are attached to the end of the rope. At the end of the lower link a long and heavy iron pipe is fixed, and in the end of this is screwed the drill, about three inches in diameter, and a yard long. When all is ready the drill and its heavy attachments are lowered into the tube and the engine set in motion. With every elevation of the derrick end of the walking-beam, the drill strikes the rock, the heavy links of the "jars" sliding into each other and thus preventing a jerking strain on the rope. The rock, as it is pounded, mixes in a pulverized condition with the water constantly dripping into the hole, and assumes a pasty form. After a while the drill is hoisted out and a sand-pump dropped into the hole. The sand pump is a copper tube, about five feet long, and a little smaller than the drill, having a valve in its bottom opening upwards and inwards. As the tube is dropped into the hole the pasty mass rushes into it through the valve and remains there. When this has been done several times the tube is hoisted out and emptied, the operation being repeated until the hole is clear, when the work of drilling recommences. It is evident that as the drill is not round at the point, but with a chisel-shaped edge, the hole would not be round unless some other means were adopted. This is partially accomplished by the borer, who sits on a seat about six or eight feet above the hole, and holds a handle fixed to the rope, giving the latter a half twist at every blow. By this means a nearer approach to a cylindrical hole is attained. But the hole must be as nearly round as possible, and therefore the tools are taken out, and a "rimmer," or "reamer," sent down, which cuts down the irregularities of the hole.

In the earlier days of well-boring, as now in some localities, the wells were sunk by hand, or by horse-power. In the former case a stiff spring-pole, firmly secured at one end, lifted the drill and rods suspended from its free end, and the power was applied to this end to make it suddenly descend. Two men, standing together, placed each a foot in a double stirrup suspended from the pole, and suddenly bore it down. Immediately it sprang up, and the operation was repeated. This was a tedious and laborious operation, and has been generally abandoned.

As the holes get down to points where the first indications of oil are reached, the contents of the sand-pumps are anxiously examined. The oil-borers have a geological system of their own, the prominent points of which are three layers of sandstone. The "first sandstone" lies immediately below the alluvial deposit. The "second sandstone" is at a variable depth of 100 to 300 feet, and here the first indications of oil are reached. Some wells go no lower than the second sandstone, but the general plan is to go down into the "third sandstone," where the largest and most reliable deposit of oil is found.

It frequently happens that the drill breaks and falls off, and becomes fixed in the hole. Nothing can be done until the tool is removed. The remaining portion of the boring instrument is taken off, and a pair of nippers or clamps let down into the hole to grip the broken drill and extract it. Some men make the extraction of tools a special business, and exhibit great ingenuity in their devices to overcome the difficulties they have to encounter. There are some instances where wells have had to be abandoned in consequence of the tools remaining immovably fixed in the hole.

When the hole has been sunk to a sufficient depth and "strike oil," the next thing is to extract the oil from the well. If a flowing well has been struck, all the trouble on this head is saved, as the oil and gas rush out in a stream, sometimes with such violence that the men have to make their arrangements with considerable rapidity, or the precious fluid runs to waste. The first business is to tube the well. An iron pipe, with a valve at the bottom like the lower valve of a pump, is run down the entire depth of the well, the necessary length being obtained by screwing the sections firmly together. If the oil does not flow spontaneously, a pump-box, attached to a wooden rod, also made of sections screwed into each other is inserted in the tube, and the upper end of the rod attached to the "walking-beam." The well is now ready for pumping.

One important feature in the tubing process must not be forgotten. In boring for oil, springs of water are of course cut through and the water falls into the hole. Being heavier than the oil, it lies at the bottom, and would enter the pump-tube but for a very ingenious contrivance known as the seed-bag. This is a leather bag, in shape something like a boot-leg, filled with flax-seed, which is fastened around the iron tube at what is considered the proper point, and crowded down with it. When the seed-bag becomes wet it swells and thus forms a water-tight packing between the tube and the rock. At times the seed-bag slips or bursts, the well at once fills with water, and the tubing has to be pulled in order to refix the seed-bag.

More or less gas accompanies the oil in its passage to the surface. If a flowing well, the gas is allowed to escape, there being no use for it, and it can be distinctly seen puffing out of the pipe, generally with labored breathings or panting, the cause of which is known among the operators as the "breathings of the earth," in reality being the irregular obstructions to its passage by the unequal flow of oil in the bottom of the hole. The passage of the oil from a large flowing well is a curious and interesting sight.

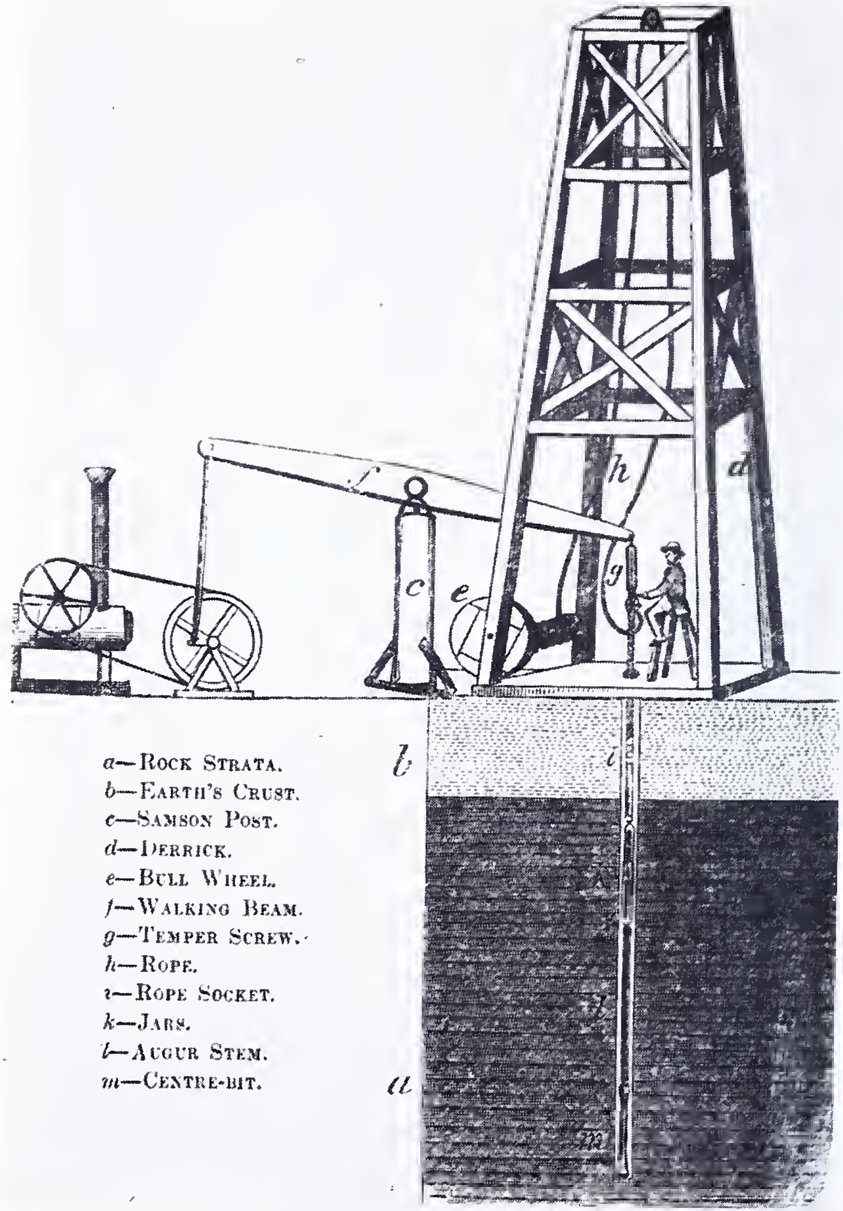
In many of the pumping wells the gas is saved and used, either by itself or with coal, as fuel for the engine. To save it, the mingled gas, oil and water—for in spite of all precautions some water will come up from nearly every pumping well—is conducted by a pipe from the well tube into a tight barrel. The oil and water fall into the bottom of the barrel, and run off by a pipe near the bottom into a huge tank or vat, where another separation is caused by the different gravities of the two fluids, the water sinking to the bottom of the vat. The gas escapes by a small pipe at the top of the barrel, and is conducted into the furnace, where it burns with a fierce and steady flame. The engine of the Forest City well, as also many other wells, is run entirely by gas, the jet being spread into a broad and waving flame by passing through a piece of sheet iron pierced with holes. Its steadiness is shown by the fact that the engine house is lit with several jets of gas, of a steadier and purer flame than that furnished by some gas companies.

The oil, as it flows into the tank, is a dark green fluid. When sold for shipment it is drawn off by a faucet in the bottom into barrels. In the larger wells, where a considerable quantity of oil is kept on hand before sale, ranges of vats are built, the oil flowing from one to the other. The vats are covered with boards, and at the larger wells roofed in to prevent evaporation.

At the gassy wells great care has to be taken with regard to fire, as a lighted cigar might set fire to the gas and blow up the whole concern. In the early days of the flowing wells, before their nature was thoroughly known, serious conflagrations took place from this cause. Should a well take fire, water not only fails to extinguish it, but seems to add to the fury of the flame.

. . . . .

The cost of sinking a well differs greatly according to the locality, the nature of the rock, the depth to be sunk, and other incidental causes. The engines used range from six to eighteen horse-power, the general size now coming into use being from ten to twelve horse-power. The mistake frequently made by inexperienced managers is the getting of too small engines, the object being the saving of expense. It is a false economy. Small and inefficient engines are the cause of much of the trouble at the wells. It is better to err on the side of unnecessary power, as the same engine can be used for sinking new wells whilst pumping the original well. In some places five or six wells have been worked by the same engine. Get a good engine, in perfect order, and it will be found the most economical. Such an engine will cost from $2,100 to $3,000. The derrick, walking-beam, &c., will cost about $150; one set of drilling tools, about $300. The inch and a half hawser, sand-pump, tubing, drawing-pipe, and miscellaneous tubes, will average $1,000 more. The drilling is generally done by special contract, the owners of the property finding the tools and machinery. The average contract price is $2.50 per foot for the first five hundred feet. Where the proprietors determine to sink wells with their own workmen, it is necessary to keep strict watch, as the "superintendant" is very apt to spend a considerable portion of his time in "prospecting" and land speculation on his own account, and the workmen, being paid for their tedious and monotonous work by the day, are usually in no hurry about it, when left to themselves. The total cost of sinking a well five hundred feet may be estimated at from six thousand to nine thousand dollars. The first estimate may not be exceeded, but so many mishaps occur from the breaking of tools, giving away of machinery, and other causes, that it is better to have a wide margin. The second well can be sunk at about half the expense, by using the same engine and tools.



EARLY WELL BEING DRILLED

This method of drilling a well became common after the abandonment of the spring-pole method. Taken from Eaton's, *Petroleum: A History of the Oil Region of Venango County, Pennsylvania.*

After the well is sunk, should it flow, the expense is merely nominal. If it is a pumping well, two engineers, one or two extra hands, and the fuel, will make the ordinary daily expenses from ten to twenty dollars, according to circumstances. The breakage of the wooden pump-rods, giving out of machinery, delays by slipping and bursting of the seed-bag, and the frequent difficulty of obtaining fuel, even at a high cost, will frequently increase the expenses and diminish the receipts at the same time.

139. A Trip Down Oil Creek in 1865

One of the most interesting and complete accounts of a trip through the oil region in 1865 was written by J. H. A. Bone. This account is taken from his book, *Petroleum and Petroleum Wells,* J. B. Lippincott & Company, Philadelphia, 1865, pp. 54-82.

Travelling in the roomy and elegant cars of the Atlantic and Great Western Railway, the journey was performed with comparative ease and comfort. At Meadville we halted for the night at the McHenry House, that we might enter the oily land with daylight to reveal its wonders. Here we found the principal topic of discussion was oil. The wave of excitement which was said to be sweeping through the valleys to the southward, rippled gently in the McHenry House, and people were discussing the latest news from "the Creek." Everyone we met with was "in oil," and everyone was making arrangements to get deeper into the grease. Big stories were told of the fortunes made at the wells, and by the owners of oil lands, and bigger tales of the frightful state of the roads. I dreamed all night of thousand-barrel wells throwing up oceans of mud, and wading in greenbacks to the knees. My travelling companion in the opposite bed interrupted his "distinct breathings," with muttered offers of "ten thousand dollars for the refusal of your farm for five minutes," awakening me with his demands for an immediate answer. I set him down as a pitiable case of "oil on the brain," and tried to go to sleep.

At five o'clock of a dark, cold, and snowy morning, we set out by freight train for Corry, having determined to enter the oil region by the Titusville route. That it is not the most convenient route was a fact of which we soon had abundant evidence, but, on the whole, there was not much to complain of, although travelling in a caboose car very early on a cold morning, is not the most pleasant experience in the world.

Everything must have an end, and shortly after eight o'clock we reached Corry. Here the Atlantic and Great Western, Philadelphia and Erie, and Oil Creek Railways meet. The junction station is a miserable little affair, of rough boards, and utterly unable to shelter one-half the crowd waiting to go by the different trains. The snow was driving furiously, the weather was getting momentarily colder, and everyone sought shelter. The dense mass, packed into the miserable little station like herrings in a cask, formed a motley assemblage. There were but few women among them. The men were of all ranks, ages, and descriptions. Sharp-eyed, trim-dressed, and eager speculators from New York, Philadelphia, and Pittsburgh, a carpet-sack in hand, or with travelling bag strapped over the shoulder, going down to secure a "big thing;" traders anxious to open up a line of custom; rough fellows, going down to work at the wells; and old farmers, coarsely clad, and with their cowhide boots covered to the tops with mud whose layers spoke of months of travel over villanous roads, just as the concentric rings of bark on a tree reveal its years of growth, but who had within a year or two been made rich by farms that had previously made them poor—all were bawling for tickets for "Titusville" or "Shaeffer's Farm," until the ticket-clerk was well nigh driven desperate.

For nearly an hour the crowd surged outward towards the platform, as the rumble of a passing locomotive was heard, and inward towards the stove, as the origin of the sound became known. Just as the crowd had settled down to the conviction that there was to be no conveyance to Oil Creek, a shout of 'Train" was heard. A bomb-shell suddenly dropped in their midst could not have produced a greater stampede than did that shout. The train was slowly backed down to the station, when the crowd rushed furiously at it. They swarmed up the steps, into the baggage car, over the locomotive, everywhere but under the wheels, and how they escaped that was a mystery. All the courtesies and amenities of life were disregarded. Men fought for precedence as if their lives depended on it. Women were rudely thrust back by anxious men who clung to the strap-rails and kicked off those who endeavored to climb over them. Three cars and a baggage car were in three minutes packed almost to suffocation. A rattle and a jerk, and the train was off, shaking and jolting everyone into position. We were well on our way to the "Oil Dorado."

From Corry to Titusville the railroad passes through an irregular country, and the track generally follows the original configuration of the land. Up the hill the huge locomotive pants with its heavy load, and down hill it rushes, shrieking as if anxious to plunge itself into destruction. Corry, with its scattered houses, its immense oil refinery, the largest establishment of its kind in existence, and all the other items that make up a thriving town, where three or four years ago there was nothing but "the forest primeval," is soon left behind. So also are the long trains of engines waiting to be united to innumerable derricks already lining the creek, but which will have to wait longer yet, owing to the inadequate facilities possessed by the road for transporting the immense amount of freight crowding on it. Soon the line of the creek is struck, and the road skirts its edge, most of the way winding along a ledge cut in the face of almost perpendicular cliffs. Here and there a derrick, like the skeleton of a church spire with its apex sawn off, and the frame not yet lifted on the church, keeps solemn watch along the banks, pickets of the advancing army of Petrolia. Presently the derricks increase; they close up their ranks, and soon stand in unbroken line along the left bank of the stream, throwing frequent skirmishers across to the right bank, effecting lodgment at the foot of the precipitous cliffs, here there is barely room to stand, and even threatening the railroad track which winds higher up. Puffs of steam and creaking of engines show where the pumping wells are at work. The river is dark, and a scum of oil glistens on its surface. Here and there a small board-shanty, connected by slender pipes with tanks at a little distance, marks the existence of a refinery —for all the processes connected with oil, from its extraction from the rock until it is ready for consumption, are carried on in the vicinity of the wells, employing a great number of refineries in addition to those in successful operation at Cleveland, Pittsburgh, New York, Philadelphia, and other places. The river margin widens and the number of derricks increase. No longer in single line, they double and treble their ranks, and appear in unbroken column; the new timber showing the large proportion just started, and the black and greasy appearance of many proving that their owners have "struck ile."

Twenty-eight miles from Corry the train stopped at Titusville the last point in Crawford county before entering Venango county. A few years ago, Titusville was a lively little village, chiefly inhabited by lumbermen and raftsmen. In 1855 it was credited in the Gazetteer with having "an Universalist church and 243 inhabitants." Now it has a population of over six thousand, and it is rapidly increasing.

The one church has found several others to keep it company. There are thirteen hotels, crowded nightly with guests, of whom a large proportion have to spend the night without the privilege of half a bed (an entire interest in a bed is a thing unknown in the oil region). Two banks do a large business in the funds produced by operations in oil, and a third bank is nearly ready to open. A new and handsome reading-room, well supplied with the papers and periodicals of the day, has been opened, and there is a hall kept constantly engaged by lecturers, concerts, and other popular amusements. In every part, Titusville gives evidence of its state of transition from a small village to a thriving city. Lofty and handsome brick blocks alternate with small dilapidated wooden buildings. A well-made plank sidewalk borders a muddy canal, by courtesy called a street. When the citizens have time, some day, they will probably rectify those little irregularities, but just now every one is too busy. There are oil wells within the limits of the town, and some of the new settlers who have purchased lots on some of the streets are in doubt whether to erect a dwelling or a derrick. One is necessary, yet the other may pay best.

The platform at Titusville station was crowded with people, some waiting to see the new arrivals, but most intending to take the train for farther down the creek. For every person who left the train at least three got on, so that the crowd became even thicker than before, and a number were driven to the platform of the cars.

From Titusville to Shaeffer's Farm is seven miles, and all the way there were abundant evidences of oil adventurers, past, present and prospective. About a mile and a half below Titusville, on Watson's Flats, is the scene of Col. Drake's first experiment in sinking oil wells, the result of which has been the enriching of thousands of persons, and the addition of an immense business to the resources of the nation. Near this point comes in the East branch of Oil Creek, which has now been purchased and leased to nearly its entire length, for the purpose of boring for oil. Along the whole route to Shaeffer's Farm the derricks increased in number until there was a perfect forest of dismantled steeples. The air was redolent with the greasy perfume, and the passengers in the crowded cars talked more fiercely about oil, and discussed vast sums of money more gibly.

Miller's Farm, at which the train stops for a few minutes, is now a scene of busy activity. In the Autumn of 1864 three-fourths of the farm, comprising a tract of three hundred and seventy-five acres was purchased by the "Indian Rock Oil Company," of New York. The enterprise was a vast one, for the purchase of so large a property in the very heart of the developed oil region, required large capital.

The property at the time of its purchase contained a number of wells in operation, and others going down. The new proprietors, anxious to fully develop the value of their property, instead of floating their stock upon the market, proceeded at once to the work of sinking new wells, and in this way have already expended about $75,000. The result of this course will, from present appearances, be the production of several new successful wells.

Shaeffer's Farm at last. The crowd tumbled out of the cars as frantically as they clambered in, and, clutching their scanty baggage, rushed wildly for the "hotel," scrambling over each other in their anxiety to get first at the register. Every man as he scrawled his name with a nervous hand, inquired if he could get a room at night, and was met with the chilling response from an individual in high boots, covered with mud, that "there was almighty little show for anything, as it looked to him." Determined to make sure of what was at hand, and trust to luck, for the future, the crowd broke for the dining-room, not stopping to go through the ceremony of washing, for the land of grease and dirt has been reached, and the niceties of civilized life are henceforth disregarded. A plunge was made through the narrow passage to the dining-room; already keen-scented nostrils snuffed the titilating odor of roast and boiled, and hungry mouths watered in expectancy. But an impassable obstacle presented itself in the shape of a grim janitor who refused admittance without a ticket, and the "Johnny Newcomes" had to fight their way back to the bar and deposit seventy-five cents for the bit of blue paste-board, whilst the old stagers who were better provided, entered and filled all the vacant chairs. To give an idea of the rush of pilgrims to the Oily Land the fact may be cited that at one tavern at Shaeffer's Farm, about four hundred people dine daily. As to the quality of the meal we have nothing particular to say. The price was first class, and if the viands fell short of first class standard, the people at the "oil diggins" have no business with nice stomachs.

Dinner bolted, our first enquiry was about getting down the Creek. Conveyances there were none, from the fact that there were no roads to travel on. A single glance at the country around the "hotel" settled that question. A walk of three feet from the door in any direction brought the wayfarer into mud knee deep—and such mud! Clayey, slippery, greasy, sticky mud, into which you slid easily to uncertain depth, but which clung with fond affection to your legs, and endeavored to perform the offices of a boot-jack; deceptive mud, that appeared of uniform quality, but which in places suddenly engulfed the traveller thigh-deep. Some of the pilgrims struck out boldly but were soon stuck fast, monuments of their own rashness. Clearly that mode of travel was not to be thought of except in case of dire necessity.

A good Samaritan appeared on the scene in the person of an exceedingly dirty and rowdyish looking young fellow, with the guise of a canaller. He loudly invited every one to take the packet boat for Oil City. Here was hope—doomed, alas! to be crushed as soon as born. The packet boat was an oily flat-boat, without shelter or seat, and the fare for the twelve miles by this precious conveyance was only three dollars and a half, or about thirty cents a mile! So that plan was rejected, and a brief council of war resulted in the decision to stay all night at Shaeffer's Farm, and start down on foot early in the morning. By dint of considerable finessing we secured a half-interest each in a small bed, packed with another bed in a dark closet dignified with the title of a "sleeping-apartment." As four persons occupied the room, in which there was barely space enough for two persons to undress at one time, and as there was not a window or opening of any kind for ventilation, but little clothing was required to keep us warm, a fact of which the landlord was evidently aware. Our neighbors "across the way" were deep in oil, and kept up a continued conversation on the subject. About two o'clock in the morning I dropped asleep, lulled by a confused sound of "flowing well—five hundred thousand dollars—one-half the oil—two years ago he wasn't worth a red cent—two thousand dollars a day—the biggest thing yet—third sandstone—made his everlasting fortune." My last mental reflection was that I wished I could say so myself.

He who essays the "middle passage" between Shaeffer's Farm (the present terminus of the Oil Creek Railroad) and Oil City, must prepare himself for an experience for which life in the city affords but a poor preparation. The second step from the hotel at Shaeffer's plunges the pedestrian into a sea of mud which extends with varying depth to Oil City, more than twelve miles, with scarcely a friendly rock on which to rest the sole of the foot. Mud everywhere, illimitable, unfathomable. Let him who thinks he can make the passage by turning up his trowsers over his ankles and picking his way, at once disabuse himself of the idea. If he does not, ten steps from Person's Hotel at the Shaeffer will do it for him.

Lest any intending visitor to the oil regions should be discouraged by this picture and confine his wanderings to the limits of the railroads, I warn that if he would see anything at all of oildom he must make the passage, unpleasant as it may be. There is no alternative. To see the tips of the elephant's ears, or the end of his tail, is not to see the animal, or from any idea of his bulk, and there is no other way of doing it than to "wade in." And this much may be added, that whoever makes the trip, with his eyes open, will never regret it. The sight is one of which no description, however graphic or minute, can give a just idea.

The best way of making the passage, whether in the muddy season, or in the season of ice, is to travel on foot. It is the most independent, enabling the visitor to pursue his investigations with greater freedom, and is, moreover, in general, the most expeditous way. A flat-boat is an abomination, and a horse—especially such as they have on the Creek—is vanity and vexation of spirit. Strike out boldly on foot, and pull your legs up when they disappear from sight, remembering that if you descend deep enough you may strike oil. There is a choice of paths in going down or up the Creek, the difference being that each is muddier than the other, and that you are certain to select the muddiest.

The morning we set out from Shaeffer's, heading down creek, was intensely cold, with some little flying snow. The ground was frozen hard, with ridges and knobs, making the travelling even worse than it would be in soft mud. Not unfrequently what appeared to be solid ground would prove to be a mere thin crust, covering a deep mud-hole, into which an unwary step would send the unlucky traveller knee-deep, sorely to the wear and tear of Christian patience and forbearance.

After leaving Shaeffer's Farm the route lay through the Stephenson and Gregg farms.

With every rock and turn of the sinuous creek the derricks increased in number, and the wheeze and clank of the engines grew louder and more confused. Climbing around the bluffs, over a steep path, then striking the newly graded track of the unfinished Oil Creek Railroad, chiselled out of the face of the cliffs, and at last descending to the half-frozen mud of the valley, we came out on the Foster Farm, crowded thickly with derricks and engines, groaning and creaking with the labor of pumping up the liquid treasures of the earth, more valuable than the golden waters of the ancients. About sixty derricks were massed together on this little tract of land, most of them with their black, greasy vats, sometimes ranged in a row, capable of holding each from five to ten thousand dollars' worth of oil, and several of them full. New derricks were going up, and engines stood around, waiting to be put up in the proper places and set to work. By the roadside is a row of vats, at one end of the row being the time-stained and greasy derrick of the famous Sherman well, whose history has already been given. Near it is the Porter well, which in May, 1864, commenced flowing about one hundred and fifty barrels daily. On this farm are the wells of the Briggs Oil Company and across the Creek are those of the Gillette Oil Company, both under the management of Mr. J. T. Briggs, who also manages the property of the Indian Rock Oil Company. The Briggs Company has been enabled to pay heavy dividends from its receipts. The Gillette Company's wells, on the Espy Farm across the Creek, are partly producing and partly boring, the prospects being very good for the proprietors. Close to these wells are the old Buckeye and the Buckeye Belle wells. The Buckeye formerly flowed largely, and bears an extensive reputation from the fact that it was the oil of this well which Mr. J. T. Briggs shipped to Europe as a sample, being the first American rock oil ever sent across the Atlantic. Having lain idle for some time the well became choked, but has been restored by an air pump and is now doing well. The famous Noble well, which in 1863 flowed twenty-five hundred barrels daily, and still flows largely, is on the same side of the Creek as the Gillette Company wells, a little above. There also is the Crocker well, struck in 1863, and flowing largely for a considerable time, but now pumping.

Here became visible the usual system of transportation adopted for oil and fuel, which is flat-boating on the creek. Four horses abreast are attached to a flat-boat, which they haul up stream, the horse taking the middle of the creek. The bed of the stream is even and covered with loose flat shale rock, the water being up to the horse's belly. An Oil Creek flat-boat generally holds from eighty to one hundred barrels of oil, on which the freight up is from seventy cents to one dollar, freight on coal being in proportion. As the boats sometimes make two trips a day, the business is highly profitable, though anything but pleasant, especially to the horses. As we passed down the creek the weather was intensely cold, and the ice was floating down in large masses, but the unhappy horses had to wade up with their heavy loads, their bodies partially clad in icy coats of mail, and their tails mere bunches of icicles. If it is borne in mind that these horses had to be from three to four hours in this icy water, without relief or rest, and that even saddle-horses have to wade the streams several times in making the journey, the short lives and the wretched character of the live-stock in that region will not be wondered at.

Passing one or two "runs" with derricks going up or wells going down, we strike the McElhinney Farm, on both sides of the creek, punched as full of holes as a strainer. Here is the famous Funk well, the first flowing well on the creek, that kept up its stream of wealth for fifteen months, and close by, the Empire well, that gushed forth three thousand barrels daily, and flooded the land around with oil a foot deep.

The Funk well is now silent and its lips dry, but the old Empire, after two years of steady flow, followed by a pumping yield of about a hundred barrels daily, and then a stubborn refusal to give another drop, has been induced, by the gentle persuasion of a "blower," or air pump, to send up about a hundred barrels a day.

Passing through the Boyd Farm, on the East side of the Creek, on which there were fewer wells than on the tracts on either side of it, we crossed the stream to the G. W. McClintock Farm, where the throng of derricks, the clustered houses, and the flag-pole in front of a tavern, marked the presence of "Petroleum Centre." Here the wells are crowded as thickly as houses in the most populous part of a city, dwellings and engine houses being mixed up in such inextricable confusion that it is difficult to distinguish one from the other without entering, and not always then. A ravine enters the Creek at this point from the West, and near the mouth are several producing wells, among others the Wild Cat wells, on the Gillespie property.

Recrossing the river to the East side we came out on the Hyde and Egbert Farm, one of the most noted parts of the Creek from the number of important wells on it, among them being the Coquette, which is now flowing a large fortune into the pockets of its owners. Like most of the original owners of property on Oil Creek, both Dr. Egbert and his partner were men of small means before they struck oil, though both are now very wealthy. Several of the great flowing wells of the Creek are on their farm, and as the land owners have an interest—generally one half—in the oil raised, a comfortable income is secured. Here is the Maple Shade, which for months ran a thousand barrels daily, now dropped to fifty; the Jersey, which still flows three hundred and twenty; the four Keystone wells, which have aggregated two hundred and sixty barrels; and a number of other flowing wells, including the Coquette. There are, in all, on these forty acres, sixteen flowing wells, and sixteen pumping wells, all yielding.

The Coquette being one of the latest great "sensations," is an object of much curiosity, and many pilgrims come daily to gaze in wonder and envy on it. Steps have been created and visitors are admitted to a sight of the oil pouring into the tank on the payment of ten cents. A romantic story is told in connection with this well. It is said the brother of the superintendent of the property had a dream in which he fancied that an Indian menaced him with a bow and arrow. At that moment a lady friend, who had been considered somewhat of a coquette, advanced steathily and handed him a rifle with which he fired at his foe. The Indian disappeared, and from the spot where he had stood gushed out a river of oil. Visiting his brother soon after, he recognized a place on the Egbert Farm as the scene of his dream, and pointed out the spot from whence the stream of oil burst forth. His brother marked the spot and bored the Coquette well, which commenced flowing fifteen hundred barrels daily, then fell to one thousand barrels, and now gives about six hundred barrels regular daily yield. Owing to the volume of gas in the well the oil rushes out like spray with such violence that at first it blew entirely across the tank, and saturated the ground around. A covering of boards has now been placed at the mouth of the pipe, and against this the stream plays with a force resembling the stream of a steam fire-engine striking the side of a house. The quality of the oil was at first not of the best kind, being "riley" and of a yellowish color instead of the dark green of pure oil. It has now greatly improved and sells at full prices. There are twelve tanks holding from twelve hundred to sixteen hundred barrels each, full of oil, worth in the aggregate over $150,000, in addition to what has been barrelled and sold. All around are notices warning visitors against smoking, the air being full of highly inflammable gas. A share in the Coquette is considered a "moderate" fortune. In January of this year, Dr. Egbert sold one-twelfth interest in the Coquette for $250,000. Four years ago he bought the entire forty acres on which these flowing wells are located for one thousand dollars, taking his last dollar to pay the sum.

Passing the Rhinoceros well, the Porcupine well, the Ram Cat well, and a whole menagerie of other wells, we came to the Story Farm, crowded with derricks and wells. Here are the locations of the Columbia and Dalzell Oil Companies, two noted Pittsburgh Companies, the former being one of the most successful in the oil regions, returning larger profits to its original stockholders than any other company. Its history is such a remarkable instance of profitable investment that it will be read with interest. The Columbia was organized in 1862, and purchased the Story Farm for $128,000 from a company of seven persons of Pittsburgh, who in 1859 bought the farm for a few thousand dollars. The Columbia Company was organized with a capital of $200,000, divided into 10,000 shares of a par value of $20 each. During the year 1862 the stock varied in price from $2 to $10 per share. At this time the chief difficulty with the company was the receipt of twelve hundred barrels of oil per day and no market for it. But a foreign demand soon sprang up, and between 1862 and 1864, the Company divided $300,000. In April, 1864, $70,000 was divided, in May following $100,000, and $100,000 in June. The dividends between July and December were $625,000, making a total of dividends since the formation of the company of $1,195,000, more than five times the amount of the original capital. In June, 1864, the old shares were called in and new ones issued of $50 each, the holder of an original $20 share receiving five new ones, of $50 each. The person who paid one year and a half ago the par value of $20 each for one hundred shares, and has held his stock, has received $12,000 in dividends to December, and from the profits on the increase of capital made in June last, obtained an accession to his stock of four hundred shares, which shares are worth, with his original hundred shares, at present market prices, $42,500, making a clear profit of $52,500 in eighteen months. If he bought the original shares at their lowest price, $2 each, that profit was made on a capital of $200.

Next below the Story Farm, on the East side, is the Tarr Farm, on which is the famous Philips well, which flowed two thousand barrels daily for many months. The owner of the Tarr Farm in years past was a poor and uneducated man, who eked out a meagre livelihood by lumbering in addition to scratching the barren hill for a scanty crop. Poor as the surface crops may have been, the soil below has sent up products so rich that the lucky owner is now an exceedingly wealthy man, who lives in splendid retirement at a small town not far from Meadville. The farm is covered with wells, nearly all of which, if not the whole, are successful. Judging from a superficial examination, this appears to be one of the most successful territories on the Creek, as it certainly is one of the most muddy. Here we came across a team stuck in a mudhole, the fore-wheels clear under and the hind-wheels invisible to the hub. The teamster, who, judging from that portion of him above ground, was probably a six-footer, stood contemplating the situation with dismay. In passing we ventured to remark, "Mister, guess you are stuck." It was a daring remark to make under the circumstances, and nothing could be expected in response less than a volley of curses, deep and dire. That such a proceeding suggested itself to the mind of the teamster was evident by the look of his eye, but, after revolving the whole matter, he concluded he could not do justice to the subject, and with one look at the stalled team and another at us, he gave a heavy groan, and responded, "Well it looks like it!"

Through muddy flats and up steep hill-sides; past throngs of derricks; by gushing flowing wells, and creaking pumping wells; through the Blood Farm, where the dilapidated, unpainted, moss-covered and time-stained house, in which the owner of the farm lived in his days of poverty, is confronted by the smart and showy boarding house erected for the use of its employees by the New York company now owning most of the wells, at last we reach the Rynd Farm, and the mouth of Cherry Tree Run. Here the wells again become very thick, and abundant evidence exist of a large number of them being productive.

On this farm are two peculiar wells, the "Agitator" and the "Sunday." The "Agitator" has to be pumped for a few strokes every half hour, when it flows for ten or fifteen minutes. The "Sunday" well, close by, produces nothing on week days, when the "Agitator" is worked, but on the Sabbath, when the "Agitator's" pump rests from its labors, the "Sunday" flows about a couple of barrels.

The widow McClintock, or Steele Farm, lies below the Rynd Farm. A large number of valuable wells are on this property, yielding a splendid revenue to the proprietor of the land, John W. Steele, who has but just come of age. The Buchanan Farm comes next in line, and at this point, near the village of Rouseville, another of the villages born of the oil excitement, is the old Taylor well that once flowed largely, but stopped after yielding sixteen thousand barrels, when it was left to lie idle. It has recently been restored by pumping about thirty barrels. A few rods farther down, Cherry Run enters Oil

Creek. Resisting for the present the desire to explore this ravine, now the scene of so much excitement on account of the numerous successful wells recently struck, we passed on to McClintockville, on the Hamilton McClintock Farm, a small village, partly perched on a high bluff, and partly on low ground on the other side of the Creek.

Here again was a throng of wells, most of them highly successful, with several new wells, many of which had "struck ile." Among these wells was one which had been the scene of a curious streak of luck. The owner sank his hole to the third sand-rock, but found nothing but water. He pumped diligently for days, but without finding a grease spot in his vats, and then abandoned his unproductive hole in disgust. At this point he was visited by the owner of a neighboring well, who had been reaping the benefit of his labors, the water drawn up from the unproductive well having relieved the adjoining well of the stream which had previously caused some trouble. The visitor offered to pay the unfortunate pumper thirty-eight dollars per week to keep his pumps going, and, rather than abandon his engine, the latter agreed, and set to work once more. Six months he kept at it, drawing pure water out of the hole, to the relief of his neighbor, and then he "struck ile," and has since been pumping steadily to his own delight and the chagrin of his neighbor, whose vein he has "tapped." A nice question of ethics is involved in this matter. If the pumper was hired to pump his neighbor's water, has he any right to pump his oil?

In the middle of the river below McClintockville bridge is an old well. Tradition says that at this point a spring of oil bubbled up, and the Indians were in the habit of coming here to skim the oil for medicinal purposes. Here, also, it is said the owner of the land gathered the oil by soaking a blanket in the stream and wringing out the oleaginous fluid in a bucket. A few years ago a well was sunk on the spot, but the brilliant expectations indulged in by the adventurers were never realized. It was not a paying investment.

The Clapp Farm has a number of wells, many of them successful, but none of great note. Just below the southern line of this tract is Cornplanter Run, coming in from the West. Preparations have been made for boring on that territory. The Graff Hasson Farm, next above Oil City contained one thousand acres, and was purchased in 1856 for $7000. A short time since three hundred and twenty-five acres of it sold for $750,000. It formerly belonged to Cornplanter, the renowned chief of the Seneca Indians.

Oil City at last. Oil City with its one long, crooked and bottomless street. Oil City, with its dirty houses, greasy plank sidewalks, and fathomless mud. Oil City, where horsemen ford the street in from four to five feet of liquid filth, and where the inhabitants wear knee-boots as part of in-door equipment. Oil City, which will give the dirtiest place in the world three feet advantage and then beat it in depth of mud. Oil City, where weary travellers think themselves blest if they can secure their claim to six feet of floor for the night, and where the most favored individual accepts with grateful joy the offer of half a bed and the twentieth interest in a bed-room.

Oil City is worthy of its name. The air reeks with oil. The mud is oily. The rocks hugged by the narrow street, perspire oil. The water shines with the rainbow hues of oil. Oil-boats, loaded with oil, throng the oil stream, and oily men with oily hands fasten oily ropes around oily snubbing-posts. Oily derricks stand among the houses, and the "town-pump," if there is such an institution, must pump oil. There are several productive wells in the city, ranging from five to twenty barrels, and the citizens are busy boring in their back yards, in waste lots, or wherever a derrick can be erected. The Linden well, just below the Petroleum House, is remarkable from the fact that it commenced to flow on the 10th day of October, 1861, at the rate of twenty barrels per day, and has daily yielded a supply that has not varied five barrels during the whole period, and appears to be as vigorous to-day as when first struck.

The growth of Oil City is something remarkable. Until the commencement of oil mining on the Creek, there was nothing at the junction of Oil Creek and the Alleghany but a small store and a tavern or two, frequented by the raftsmen who brought their rafts into the eddy and rested awhile. In 1861 a settlement was established at the mouth of the Creek, and several stores of various kinds put up. In the Spring of 1862, Oil City was incorporated as a borough. There are now nearly one hundred stores and workshops of various kinds, to which additions are always making. Fourteen hotels, large and small, and half a dozen saloons, minister to the bodily comforts, whilst the spiritual wants are supplied by four churches. Healthy as Oil City is claimed to be, there has been found employment for eight doctors, who, however, frequently mingle oil speculations with their practice.

In travelling from Shaeffer's Farm to Oil City, and not taking into account any of the "Runs," over one thousand wells, old and new, are passed. In a short time that number will be largely increased.

140. THE UNITED STATES, OR FRAZIER, WELL AT PITHOLE

Destined to be the scene of the greatest speculation in oil land was the territory along Pithole Creek, a small stream flowing southward and emptying into the Allegheny River about eight miles above Oil City. Lying on both sides of Pithole Creek, about four miles from Plumer and six miles from the Allegheny River, was the 180 acre farm of Thomas Holmden. In the spring of 1864, I. N. Frazier and James Faulkner and others organized the United States Petroleum Company and leased sixty-five acres of bottom-land on the Holmden farm for twenty years, giving one-fourth the oil. Selecting a wild and secluded spot by means of the witch-hazel twig, the company commenced to drill. On January 7, 1865, the well began to flow 250 barrels. The stock of the company rocketed from $6.25 to $40 a share. This was the momentous event that led to the rise of Pithole City. A visitor to the United States, or Frazier, well wrote the following description for *The Pittsburgh Evening Chronicle and it was reprinted by the Oil City Register,* March 2, 1865.

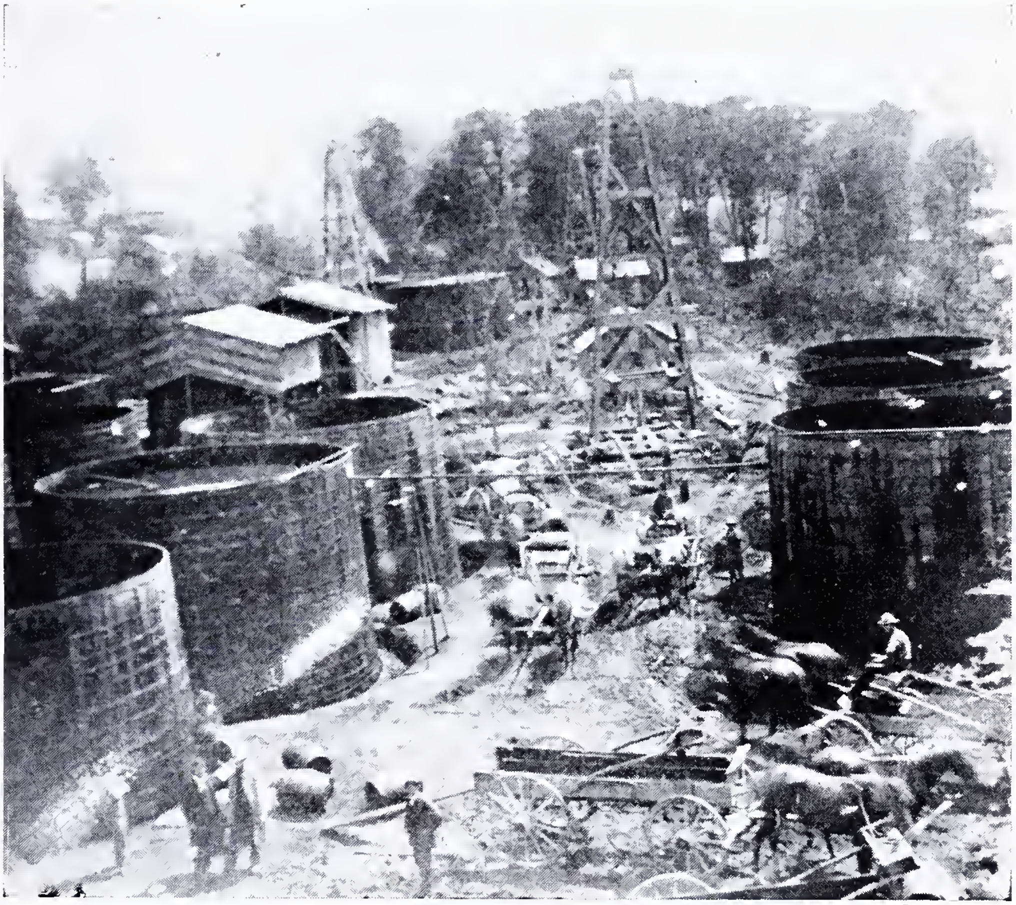
Returning to the Temperance House for dinner, our party proceeded about four miles to visit the Pit-Hole well, which has caused so much commotion and hubbub in Oildom, and in Eastern cities. The road has been well traveled by thousands of persons on foot, on horse-back, and in sleighs. It is situated in a wild, secluded, and picturesque valley, the hills, however, on either side inclining with a gentler slope than usual up here to the creek. Every days' experience knocks to pieces the theories of the wise men with regard to oil localities. The oil is struck just where, according to prediction, oil should not be struck, and *vice versa.* It is the prevalent opinion that wells should be sunk at the base of some lofty and precipitous hill, on the lines of violent upheavals and rocky distortions. Nothing of that kind here. A little brawling run rather than brook, with gentle sloping banks, and a spot for the derrick, chosen more probably by chance than by calculation. The well lies on the Holmden farm. The fence has been torn down to allow a road for visitors. Diverging from this road was another to Plumer, along which was a string of sleds, each bearing away six barrels of the precious fluid so pertinaciously teased from the vexed earth.

And what a strange and busy scene around the well itself! To get to it, you pass through a forest, or rather grove, of lofty and venerable white pines. What a contrast to the impressive solitude which has reigned there for so long a period, disturbed, perhaps, only by the deer as they came down to drink! A number of men were hewing and hauling logs, and making corduroy roads, to render easier the ascent to the top of the bank. Another number were just putting the finishing strokes to a huge tank, to hold twelve hundred barrels of oil. Numerous horses, sleighs, and curious visitors were grouped here and there. Still more men were engaged in filling barrels from the receiving tank, while scores of sleds were loading and driving off as fast as possible, their places being supplied by other scores.

Mounting a rough ladder, you get your first view of the oil which has been so rudely disturbed from its long slumber far down in the very bowels of the earth. You see nothing but a two inch iron pipe, with a stream of fluid flowing out as large as a heavy hydrant stream, and looking like country-house molasses, and of about the same consistency.

Every couple of minutes the gas—which can be plainly seen issuing from the tube like waves of heat—gives the stream a little spurt, and then it resumes its even and steady flow. Standing over the well, the oil can be plainly heard ascending the tubing. Near by stands the engine-house, with its trim, polished, and powerful engine from New York, looking as demure and innocent as if its ceaseless and powerful workings were not the cause of all the hubbub. No need of an engine now, except to sink another well, for this "big well" is a flowing, not a pumping one. It runs by natures' gas, not by man's steam. How long it will thus flow, who knows? Not a man of the United States Petroleum Company of New York, which own it, nor of the many thousands who have visited and who will yet visit it; but only the Omniscient and Omnipotent Power who made oil and who has so mysteriously concealed it in the earth until man's need for it was greatest.

The men about the well claim for it a steady flow of two hundred and twenty-five barrels per day. Experienced oil men who visit it, assert that it flows strong two hundred. But the well is remarkable not only for her locality and what she is now doing, but for what she may yet do, when allowed full scope. It must be remembered that the sucker-rods are still in the tubes, and what finds vent is only what can come through the valves. The tankage was not adequate to hold all she might flow, if every obstruction were removed. She may yet come up to three hundred, five hundred, or even a thousand barrels per day. Eight or nine thousand dollars a day—minus a quarter royalty—besides the sales of land and leases at enormous figures, will afford the New York petroleumites a snug little interest on their modest investment. This well was sunk through



THE UNITED STATES WELL, PITHOLE, 1865

Famous wildcat well, completed on January 7, 1865, which led to the rise of oildom's greatest mushroom city—Pithole. Mather Collection, Drake Museum.

four distinct strata of sand-stone rock, instead of three, as customary in other localities. The first sandstone was reached at one hundred and fifteen feet; the second at three hundred and forty-five feet; the third at four hundred and eighty feet; the fourth at six hundred feet, and the oil itself at six hundred and fifteen feet. The well was pumped for a day or two, but the vast amount of gas in the subterranean caverns or fissures, which held the oil, soon rendered useless the expense.

141. THE FIRST OIL TANK CARS

The extension of the railroads into the oil region led to the invention of the oil tank car. The first tank cars to be used are described by Alfred Wilson Smiley, who was not only an eye-witness but a participant in many of the important events in the oil region. The following account is taken from his book, *A Few Scraps, Oily and Otherwise,* The Derrick Publishing Company, Oil City, 1907, pp. 145-146.

During the summer of 1865 one of the Densmore brothers (Amos) conceived the idea of shipping crude oil in tanks on cars. This idea was put into execution by Densmore, Watson & Company., and about September 1, 1865, the first two cars were shipped to New York in the name of Clint Roudebush & Co. These two cars were Atlantic [Atlantic and Great Western Railroad] flats, with two wooden tanks, one on each end over the trucks. This was an experiment and the shipment was watched with interest. At Corry a message was sent back reporting the tanks O. K. and not leaking, at Salamanca, Hornellsville, Elmira, and on to New York telegrams were exchanged reporting conditions.

James Densmore and D. T. Watson were the active members of the company at the Miller Farm and Clint Roudebush at New York. Densmore in getting more tank cars and Watson looking after the buying of oil at dump and loading on cars. The Densmore company soon had quite a number of tank cars in service. These tank cars were shipped to New York at the rate of sixty barrels, which was the number of barrels which could be set on end on each car, the prevailing method of shipping heretofore. What these tanks on cars held was a secret for a time. H. F. Sweetzer, general manager of the Oil Creek railroad, got the facts in some way that each tank held from forty-two to forty-five barrels, or eighty-four to ninety barrels on each car going to New York for sixty; briefly twenty-four to thirty barrels carried for nothing, or rather Clint Roudebush & Co. getting a better rate than other shippers, a scheme that has been worked in many ways since then, to get a better rate than the other fellow.

142. Pithole

On account of the discovery of oil on lands hitherto regarded as unpromising, in such great quantities, and at a considerably higher altitude than Oil Creek, the United States, or Frazier, well created a tremendous demand for land, stimulated the drilling of new wells, and precipitated a general stampede to Pithole Creek, which soon exceeded anything seen in the oil region. The Holmden farm became a mecca for everyone interested in oil and anxious to make money quickly. They came by the hundreds. Duncan and Prather, who had purchased the Holmden farm, laid out a town in May, and it came to be called Pithole. On May 24, there was but one building under construction; a week later nearly the whole of main street, Holmden Street, was solidly lined with buildings and hundreds of others were under construction. By September, 1865, Pithole had two banks, two telegraph offices, a daily newspaper, a waterworks system, a fire company, two churches, over fifty hotels, and scores of business places. It was a city with about 15,000 inhabitants. The rise of Pithole had been swift and amazing, but its decline was even more breath-taking. When the Homestead well stopped flowing in August, it provided the first shock to the speculative bubble. Other wells soon failed and production fell off. With the decrease in production and the loss of confidence, operators, speculators, business men, and others quickly departed. By January, 1866, the eager throng of oily pilgrims had disappeared and Pithole was a deserted village. During the summer of 1865 a correspondent of *The Nation* visited Pithole and recorded his impressions; they appeared in *The Nation,* I (September 21, 1865), 370-372.

Taking a car on the Atlantic and Great Western Road at Corry, after about an hour I fall into a snooze, when bump go the cars, the conductor of the train pokes his head in at the door. "Break in the road," he remarks; "you will pass the night here." At this laconic and interesting speech every one turns over and goes to sleep without a word. Very early indeed the next morning, we awake, and I survey the party. There are two youths whose black coats, springing step, and innocent smile show them gentlemen and divinity students. They soon after stop at Meadville. The rest of the party are a yellow and melancholy race—then new to me, soon after well-known—operators and speculators in oil. At first, from a close resemblance to dried salt fish, I took them to be an extreme species from my native New England. But I soon found out my mistake. Pennsylvania claimed the honor of their birth.

An exception was an excellent old gentleman, nearly eighty, the president of some company, who had gone to look after its interests. Though somewhat tired by lying awake all night, the moment oil was touched upon his tongue was loosened, and he poured forth a stream of anecdote, theory, and description, which was very edifying.

Taking a horse the next morning, I climbed the hill that from the east overlooks the city [Oil City] and the creek. Unless one dipped his pen in mud, who could describe that filthiest of cities? The town chiefly consists of one long street, wedged in between the cliff and the river, crowded with shops, looking like a bisected peddler's cart indefinitely prolonged. Cologne is a savory city by comparison, and New York seems of virgin cleanliness. The inhabitants resemble the lower class of scarecrows under the influence of a powerful galvanic battery.

After a long look at this sewer of cities, and the countless derricks between the city and the hill, I again turned my nose—prophetic organ—towards the east and the new reigning beauty of Oildom, euphonious Pithole.

The road winds up and down the hills that fill the water-shed of the Alleghany, and affords many beautiful views. On either side rise well-wooded hills in graceful curves from the little streams which flow through their valleys. One does not generally associate the oil regions with the haunt of the muses, yet if the muses had been disposed to take up their abode in this Western World, I know of no more appropriate place for them than the hills and valleys of the Alleghany before man laid his greedy finger on the fair face of nature.

Everywhere, conspicuous among the trees, you see the derricks of the oil well, like steeples of the great temple of Mammon, at which all worship. Derricks, indeed, you see everywhere—in the valleys, on the hill-sides, on the tops of hills—with their engines attached, about one in fifty of which is running. Millions upon millions of dollars have been sunk all through this region in the purchase of worthless land at oil-land prices. How any imagination could suppose that oil would be produced from most of the land, I am at a loss to divine. It is well known, however, that with no class of men is the imagination so potent as with our solid business men. One searched for the wildest flights of fancy, not in a Collins or a Shelley, but in those and similar ventures by grave practical men, who would scoff at the word imagination, to whose power they are unwittingly the best witnesses.

Now and then you come upon a town of plain, unpainted boards "in looped and windowed raggedness"—and everywhere along the road you find hotels, so called, and dubious refreshment saloons, at which is sold under various names the ubiquitous whiskey.

After a few hours' ride I reached the city of Pithole. Pithole lies in the centre of the oil regions, about ten miles from Oil City and five from the Alleghany River. It covers a low hill which rises from the west bank of Pithole Creek, and will soon cover the hill rising from the opposite bank. Pithole Creek is a contemptible little stream, a few yards in width, emptying into the Alleghany a few miles below. The town has now several hundred buildings and some ten thousand inhabitants, and is probably worth fifty millions of dollars. A few months ago it consisted of half a dozen old farm-houses, fifty inhabitants and would have been valued at, perhaps, fifty thousand dollars.

The town has the usual appearance of towns in this region, and is a gigantic city of "shreds and patches." Most of the buildings are built on land leased for three years. Passing up the street, you see on either side shops and hotels, each laying a different claim to fashion. One is painted, another has a splendid sign, another has its rooms papered. Every other shop is a liquor saloon. It is safe to assert that there is more vile liquor drunk in this town than in any other of its size in the world. Indeed, a bar is almost the invariable appendage to every building. Lawyers have bars appurtenant to their offices—each hotel, dwelling-house, or shop has its separate bar.

You pass crowds of persons, in an excited state, hurrying to and fro—most of them with haggard faces, old clothes, and trousers stuck in their boots—of that fishy, scarecrow race, specimens of which I had met in the cars. You pass many familiar names—"*stat magni nominis umbra*"—the St. Nicholas, the Fifth Avenue, the Metropolitan, and the like. After a ride of a quarter of a mile you reach the famous United States well, and a strange sight it is. Forth there rushes a stream of oil as large as your arm, with constant gushes of gas. Day and night this stream is vomited forth with unabated force. Scarcely less prolific are the neighboring "Twin Wells." Here we have in these little streams the source of this seething city, with its fierce, mad energy. Wonderful sight! Gazing at these streams men go mad. The oil-fever fires their brains. They contract an eager gaze, tuck their trousers in their boots, and wander up and down the creek in search of interests in wells to purchase. Them the artful brokers descry, and one fortunate angler draws his victim to a safe nook and tempts him with the "best and cheapest" interest on the creek, "indications wonderfuly good," etc. The broker pockets his commission, and the victim is very apt to twice quadruple his investment in a short time, so he is not, perhaps, so much to be pitied.

Next to the oil wells themselves the most characteristic phenomena of the place are the countless teamsters who there congregate. Those who are acquainted with that imperturbable *tertium quid* of humanity, the army teamster, have no difficulty in recognizing him in Pithole. With dark face, shaggy beard, and slouched hat, and trousers tucked into his boots, he sits immovable on his stout team. On every proper occasion he damns his horses with a volubility and versatility of profanity which almost show a divine gift. To other except these equine emotions he is inaccessible. The team jolts on over rocks and trees, down mud-holes, out of mud-holes, down ruts—after a fashion to reduce an ordinary man to a gelatinous mass. From him it merely spills out an oath or two. Out goes a barrel, over goes the team—he tips it back, scarcely leaving his seat.

Sauntering up the street past teams, land offices, fallen trees, incipient or finished shanties, and groups of men in earnest debate about land or oil, I soon reach the centre of the town. Whom should I behold but the "fat woman" and the "fat boy?" O unctuous sight! in this lean and hungry land to meet a buxom young maiden of eight hundred pounds. How she was brought over these roads without being reduced to a skeleton, how she held her own against the water and the food, must for ever remain awful mysteries. No one but a Grant of a showman could have piloted her with her complement of pounds to Pithole by any line of which I have heard.

The United States Hotel, like all the rest, is built of planed boards, unpainted, very loosely put together. Adjacent is a tent with some fifty cots well filled every night, and fragrant from proximity to the horse stalls. The hotel must have cost some five thousand dollars. It rents, I believe, for thirty thousand a year, and the keeper must net three hundred dollars a day or more. The front of the house is covered with advertisements: three-sixteenths of such a well—mining tools for sale, engines, and the etcaeteras of incipient civilization.

In front of the building is a platform and a long bench. On this, through the day and evening, sit gloomy and dirty contortionists chewing the melancholy cud of speculation. Entering, you see other contortionists sitting in impossible atitudes. Surely Hogarth or Dickens must have had a hand in the creation of these men.

On the left you hear the telegraph ticking, and near it are men washing in a long sink. Beyond, tinkling glasses show that the versatile whiskey is transforming itself into brandy-smashes, gin cocktails, Tom-and-Jerrys, and other spirit-stirring potations. A person at Pithole is indeed placed between fire and water. To drink water is to drink a solution of salts. To drink whiskey is to drink poison. Every glass of water I took I forswore water, and every glass of whiskey, I forswore whiskey, and thus lived a life of zigzag perjury. I entered the dining room with the usual wild rush, and, seating myself by a rapid manoeuvre, watched the rapidity of dining for which my countrymen have gained a cosmopolitan reputation.

I need not describe the dinner. Are not the works of our English friends on American government and society mostly taken up with a description of the American dinner and the use of the knife? Why persons profess to be so much shocked at the sight of a knife entering the mouth I cannot see. We pay large sums to see jugglers swallow swords. Why not enjoy similar exhibitions when free? For myself, I could see a knife protruding from a gentleman's boot without surprise or concern

"Roast beef, roast lamb,
Corned beef, boiled ham,"

chanted a somewhat slatternly must in my ear. "All from the same joint," remarked an intelligent gentleman near me; "the animal must have worn motley." "By the way," he continued, "speaking of motley, did you know the circus are going to give a benefit for the church tomorrow?" "Are they?" said I; "things seem somewhat mixed in this place. How long have you been here?" "Oh, I've been here for a couple of months. This is nothing to what it was at first. Then you had nothing to eat—sleep six in a bed. Things are quite luxurious now." "Were you here at the fire?" I asked. "Yes," said he, "It was a magnificent sight. It blazed in one vast sheet of flame up to the sky. If it had spread a little, the whole place would have been burnt up. I think before long Pithole will be burnt up. It is all wood and oil, and no water near." "Concerted expectoration would soon put out any fire here," I remarked. "Rather a curious thing happened here yesterday," he continued. "The keeper of one of the hotels here turned off a servant girl. She didn't like such treatment, and, taking a horse-whip, drove him out of his hotel down the street." "Business seems to be done in a queer way here," I remarked after a while. "Yes," he replied, "men spring to it. Almost every one here is sick, and yet a sick man here works as hard as three well men elsewhere. Pretty much everything is flat now, though, except just here. The peace and the flood coming together knocked everything over. Last winter you could make money hand over fist. People would buy anything at any price. There was an old fellow, I remember, up in the mountains, with a farm where he raised a few turnips; no more chance of striking oil than of striking greenbacks. They offered him half a million for it. But he was a shrewd man; he thought they could make something out of it, or else they wouldn't want to buy it; so it must be worth more. He kept the land, and now it's hardly worth ninepence." "He was a shrewd man," said I. "You hear such stories as this all the time up here," he added, "and they are, for the most part, true; the current facts are so much stranger than the stories most men can invent, that men here are under a strong temptation to tell the truth, except where their own interests are concerned." Early in the evening I went to bed. You have always an agreeable excitement in these places as to the character of your bed-fellow—whether he be a pickpocket or murderer, whether he be subject to *delirium tremens* or other foibles. Fortunate those who have one bed-fellow! Generally you have a countless number.

The next morning I arose early and walked out upon the platform. As I stood gazing at the clouds or mud, I was aware of a rusty old gentleman smelling around a pair of boots a young chap near me had on, as an old terrier would eye a rat. I asked "what was up," and found that said boots bore too close a resemblance to some boots the old gentleman had placed at the head of his bed the night before to be passed lightly by. He insisted on it that the boots were his. The present occupant of the boots, with that irreverence for age characteristic of American youth, requested his elder to take his journey into a far country. Perhaps he thought the journey from Pithole not so long nor arduous as from elsewhere. Let us hope so for the sake of good manners.

"You'd better not talk to me in that sort of way," said the old gentleman, with somewhat ruffled feelings. "I'm pretty well known in these parts, I can tell you. I built the first hotel that was built in this county." This appeal to a hotel rather awed the youth and the rest of us, but he still showed no strong desire to part with his boots.

It is a curious fact that most men out here seem to look upon Eastern hotels as the islands of the blessed, and life there as the *summum bonum.* "I have left a luxurious home," said a very bright fellow to me, "in the East. I have been living in the first-class New York hotels, and I have come out here to rough it."

During the morning I made a call on some Canadians, the chief engineers of the county, and sitting in front of their office surveyed life in Pithole from a comfortable chair. In the foreground you see a huge mud-puddle, varying in depth from one to three feet; beyond, hotels, stores, and grog-shops, and further on, the creek, with its numerous derricks. Past this office Pithole life streams, pausing a few seconds in the mud-puddle. Here we have a gentleman in black of a serious, ministerial appearance. He was recently the owner of a "sweat-board," a singular gambling instrument, and, with others, flooded the town with counterfeit currency. After him come speculators and mechanics. "Do you see that poverty-stricken old man," says one of my friends, pointing to a broken-down wretched mortal; "that man has just sold his farm for a quarter of a million." Here comes Mr. B. formerly keeper of a variety shop, now a broker and a Croesus, but not calculated "to witch the world with noble horsemanship.' "Can you swim, Mr. B?" I exclaim. "This is the Pithole Natatorium; no one should venture it who cannot swim." Mr. B., with ruffled dignity, dismounts, and leads his horse over a plank. Soon after the head of the circus passes by. What a magnificent carriage! with the proud step of the leaders of men. He carries an ivory-tipped cane, and wears a gold seal, such as I thought scarce six men could bear up under (such men as the earth now produces). "The other day," said my friend, "the circus drove through here. The drummer-boy was spilt out into the water. Out came the big drum on top of his head, and he picked himself up as best he might. Here comes a friend of mine, the dandy of Pithole. He wears a clean collar and has his boots blacked, and is the one man of fashion among ten thousand." And so the stream flows on.

The next day was Sunday, and I took a stroll into the beautiful fields near by. Every now and then you would come upon men lying under the trees, with a worn-out, haggard look. All of them seemed half sick, and yet all were ready to work with reckless zeal. Returning, I heard the crack of a pistol, and supposed some men were firing at a target. Soon after, however, on entering the hotel, I found a couple of men handcuffed, one of them shot through the leg. They had broken jail and one of them had "squared off" at the constable on his arrest, upon which the constable had drawn his pistol and shot him through the leg. That same night a tragedy came near enacting. Notice was given the hotel-keeper of an atempt at robbery that night. He watched by the window with a loaded pistol. At about two he heard the soft tread of a man in moccasins. The thief drew near, opened the window, was about to enter, when he saw a pistol at his head, heard the false hammer strike, and was gone.

I remained in Pithole a fortnight, and became one of the oldest inhabitants of the place. During that time I learnt much of its social and business life. You find here, under the roughest clothes, some most excellent men—and, as a rule, the men are uncommonly intelligent. Every other man you meet is a soldier. The steadiest mechanics and workmen have most of them been privates, and have many wild tales to tell of battle and adventure. Most of the bar-keepers and hotel-keepers are captains or majors. Every now and then, in the neighboring country, you stumble on a man of education engaged in sinking a well. Many men of fashion, also, from leading the mazy dance and fascinating the hearts of maidens, have wandered off up here into the forest in search of a fortune or a sensation. One must needs have a good conscience or a hopeful disposition thus to sit during the long months watching a little hole slowly sinking down to a great —perhaps.

Every one here is very courteous, and answer questions innumerable without complaint. You can see here, on a small scale, how commerce softens manners. Every one is desirious of making money out of every one else, than which nothing more promotes urbanity. It is simply ridiculous to suppose that the oil business is "played out," as persons like to say now-a-days. This single town produces over five thousand barrels of oil a day. Manual labor and investments in oil companies are the only things which do not pay well. All capital otherwise invested there doubles itself with wonderful rapidity. While I was there the town nearly doubled its building and inhabitants. I will only add a description of my last night.

Hearing that the great hotel of the town was going to be christened, I went to witness the ceremony. Drinks and billiards free—and a thousand thirsty men to enjoy them. Never before did I know how strong was the love of freedom in the human breast. A wild mass of teamsters, operators, workmen of every kind and costume, drank in the varied liquor of the generous host. I myself, in a private room, imbibed some capital sherry, and after staying a short time and proposing to myself the old question, whether a sponge or a Pitholean had the greater power of absorbing liquor, I took a walk to the centre of the town and took a long last look at Pithole by starlight. Seating myself on a pile of boards, which in a few days will be a hotel, church, or drinking saloon, I gaze around. In front a flickering torch lights up fantastically the thin jaws of the lord of the "fat woman." Windows and cracks equally pour forth streams of light, that with artistic chiaroscuro play over the swarth faces and strange forms of the passers by. There goes a gentleman with a quick step closely followed by two others. He has been trying to wheedle one of them out of an engine without paying for it, and they are on his trail. Here comes our friend the parson to collect subscriptions. After him reel two men somewhat overloaded with liquor. Everywhere there is a sound of revelry. Looking in at the windows, you see everywhere men playing cards, and drinking, as always. Beyond the stores on the left, in a small house, sleeps, after his death-agony, one of the victims of the fire. Down the hill on the right sits a vigilance committee in secret session to concert measures to prevent the daily robberies. Further down, the little streams of oil flow on incessantly. Unseen they move this complex machinery of men and things, with careless hand dealing out to their slaves life or death, wealth or poverty, triumph or despair.

The next morning I arose before the sun and walked to Oil City, and was soon turned towards the East and the glorious ocean, all of whose waters I hoped would be not unsuccessfully employed in restoring me to cleanliness. After being shaken a day and night I find myself on board a Sound steamer. How strange everything looks! How clean New York looks! Never before or since did cleanliness seem a mark of that city. See those smug little misses, with their melodious giggle, their ringlets and reticules, their admonishing mamma and bland papa. How kissworthy they look. Here we have a drooping Newport "swell," with his suit of grey, his triste moustache, and bovine expectant expression. How neat they all look. And how soft and thin their voices. How piously men seem to speak or swear. Their words do not, as in Oildom, come from their boots, pumped up with fierce gesture and hot with fiery oaths. The courtly Negro and the murderous gong seem to usher in a higher civilization, at the threshold of which I leave whoever has followed me thus far.

143. Ben Hogan, the "Wickedest Man in the World"

Although born in Berne, Switzerland, Ben Hogan spent the early part of his life in Germany. When eleven years of age, his parents brought him to the United States. At the age of thirteen Hogan went to sea. When the Civil War commenced, Hogan and some of his associates bought a large vessel with which to run the blockade at Charleston. Before the Union Navy forced them out of business, Hogan says that they made $75,000 in gold and silver and about $3,000,000 in Confederate money. Hogan then turned to enlisting soldiers for the Union Army and he claims that he made as much as $10,000 a month. After this venture, Hogan joined a group known as the

"Forty Thieves" engaged in bounty jumping. Hogan asserts that he enlisted thirty-six times, got $600 on each occasion, and then deserted. President Lincoln is supposed to have saved him from execution by issuing a pardon. With this kind of a record, Ben Hogan arrived at Pithole in 1865 and soon he became the most notorious character in the oil region. The story of his life, as told to a reporter of the *Oil City Derrick,* appears in that newspaper on January 22, 1889.

I arrived at Pithole during the great oil excitement there and had a stormy time of it. A man known as "Stone-house Jack" was the leader of a gang of very tough people whose special object seemed to be to get me out of the way. Their threats to kill me were frequent, and several times they attempted to make these threats good. These fellows were thieves and footpads, and I had the permission of the Burgess to run them out of town if I could. "Stone-house Jack" shot at me once, and the next day I met him in a saloon opposite the Chase House and struck him in the neck with the butt of a pistol. Some of the gang left town, but the others remained. At Pithole a fight was arranged between me and Jack Halliday. The fight came off at Balltown, and the crowd was pretty much all on horseback. The tough gang was there to do me up, but the business men were on my side and kept the "Stone-house Jack" crowd down with pistols while the fight went on. I think we fought seven rounds when Halliday failed to come to time, and I was declared the winner. I was seconded by Jim Elliot, who was killed a few years ago in Chicago by Jere Dunn. After the fight Elliott challenged me, and we fought the next day. There was a general shooting match around the ring, and the fight could not proceed. The toughs were arrested and fined $25. each, Elliot among the number.

A TRAGEDY

From Pithole I went to Babylon, in the Tidioute field, and that I think was the toughest town I ever got into. There was an organized band of highwaymen in that country, and they frequently attempted to clean out my place. One night a party of them made a dash to go through me and I had a fight with them. There was a number of shots fired on both sides. Four of the gang were shot and one killed. They stole $700, a gold watch and some diamonds. I was arrested the next morning, Sunday, on the charge of murder. The officer who arrested me was Mr. Scott, who I think still lives in Tidioute. I was acquitted on the ground of self-defense. At Babylon I was making $300 a day.

FRENCH KATE AND HER GUN

From the Oil Country I went to Saratoga and opened a gambling house, paying $30,000 for my place. I was getting along quite well when French Kate, or Kate Le Counte, made her appearance on the scene. This woman was once married to a French Count. She owned property in New Orleans worth $500,000, and was rich besides this. I had met her in Washington City. I think, without doubt, she was the wickedest woman on earth. She had a great more to do with the plot to assassinate Mr. Lincoln than Mrs. Suratt had, and ought to have been hanged in place of her. She was jealous, revengeful, and vindictive to an extraordinary degree, and she announced her presence in Saratoga by firing at me through the window. This was a pastime that my customers did not enjoy and it broke up my business at Saratoga. Went to Albany and trained Adock and Payne, who defeated Weston in the great pedestrian contest at Troy, that was witnessed by 50,000 people.

BACK TO THE OIL COUNTRY

Came back to the Oil Region in 1867 and opened a place in Titusville. Had a barroom down stairs somewhere near the present Chase Block. While there challenged Tom Allen the second time, and when I could get a match went to St. Louis and trained Charley Gallagher. Gave sparring exhibitions with O'Baldwin, the Irish giant, Tom Kelly and Gallagher. Trained Major McLaughlin for his wrestling match with Homer Lane, and got back to Parker City during the oil excitement there. In connection with Ben Stavens opened a free-and-easy. A reform wave swept over the place and all the sports were arrested and taken to Kittanning where we were placed under $500 bonds to stop playing in the county. While the cases were being tried at the court-house, Charley Green and I dealt faro in the town and cleaned the citizens out of $1800. I gave bond with the rest and going back to Parker bought and equipped the "Floating Palace," the boat not unknown to fame. This boat I anchored out in the middle of the river and outside of the jurisdiction of the county authorities. The character of the business carried on in the "Floating Palace" is well known, or if not, may be imagined. After I had coined about $200,000 here, I started to float to New Orleans, with my interesting family aboard. At Kittanning, Court was in session when I arrived, and when I tied up at night about 100 citizens, including lawyers, jurors, and others, called to pay their respects. I cut the moorings during the night, and carried the whole kit about 30 miles down the river, and did not land them till nearly daylight. Court could not open until the party got back. The boat sunk at Pittsburg and the New Orleans trip was abandoned. I was at Parker three years and made $70,000 a year. In Pittsburg I bought a fine private residence for myself on Tenth street. A woman named Kitty Bowers managed it for me, but also managed it too much for herself, and I broke up the establishment. Kitty Bowers, I learn, is now in Petrolia, poor thing.

$60,000 LOST IN OIL

Hogan detailed his experience in Petrolia, where he conducted a dance house and made a great deal of money. He spent his money about as fast as he made it, and one time Satterfield and Taylor loaned him $2,500. They took no note or security of any kind, and when he left he gave them the Opera-house which he had built, to liquidate the debt. While in Petrolia, he speculated on the oil market, and lost $60,000. At Elk City, Bullion and Tarport, where he ran places later, his profits were from $300 to $500 a day. In Bullion he also built an Opera-house.

A BANK ROBBING SYNDICATE

At one time he joined a gang who intended to engage in the business of robbing banks. Hogan was chief of the gang, and was to furnish the capital and get 25 per cent of the proceeds. The big bank robbery in the East. in which Red Leary and his gang were interested, had a tendency to make the business dangerous, and it was abandoned.

OFF FOR PARIS

Then he made up his mind to get out of the country away from his evil associates and try to live a better life. A man named Baker, who previously shot Bill Pool in New York, urged him to join him in opening a hotel in Paris for Americans. He put $45,000 in the scheme and had his tickets bought. In New York he fell in with a lot of old cronies and got to gambling and carousing. One night he went into the Park Theatre where Chas. Sawyer was conducting a religious revival, and under Sawyer's influence he was converted to religion. Then he taught himself to read and write. This was ten years ago since which time his career as a successful evangelist is well known.

144. PETROLEUM AND THE CIVIL WAR

After Sir S. Morton Peto, the English banker, returned from a visit to the United States, including the oil region, he wrote a book entitled *Resources and Prospects of America, Ascertained During a Visit to the States in the Autum of* 1865, Alexander Strahan, London and New York, 1866. In the chapter on petroleum, he points out significantly the value of petroleum in the Civil War. See pages 205-206.

This great natural development made its appearance at a period when it was of peculiar value to the United States. At a moment of civil war, when the balance of trade was against the nation, when gold was necessarily going out, and when there was a heavy drain upon the natural resources of the country, petroleum sprung up, from lands previously considered valueless, in quantities sufficient to make a sensible diversion in the national commerce. Nor was that the only benefit it offered. Whilst it assisted the external commerce, it also stimulated the internal industry of the United States. It gave to the railway interest of the country a prospect of large additional profits; it offered employment to capital with every prospect of abundant returns; and it afforded a more than ordinary reward for labour. It is difficult to find a parallel to such a blessing bestowed upon a nation in the hour of her direst necessity.

145. USE OF THE DIVINING ROD IN LOCATING OIL WELLS

As soon as a tract of land had been leased or purchased, the owner selected a spot on which to drill. Guessing tricks and superstitious devices for locating wells everywhere flourished. Many of the oil operators used the divining rod. The following account, taken from the *Oil City Register,* September 7, 1865, explains the use of the divining rod and indicates the popularity of the method in the oil region.

The use of the divining rod in the locating of oil wells is now being generally practiced by those mining for petroleum. The mode of operation is exceedingly simple. The expert uses a forked twig of witch hazel. This he takes by the two prongs, or ends, walks slowly over the ground where he intends to prospect, holding it in a vertical position. The theory is, that in passing over a vein of oil the existence of the same is indicated by the action of the twig thus held, as the larger end points down toward the ground. By this mode of operating, experts claim that they cannot only discover the existence, but can trace the vein of oil in any direction, and locate the spot where it is most desirable to drill an oil well with great certainty of success.

Many wells located by this means have proved to be good producing ones. We are not a believer in the efficacy of the divining rods, as indicating with any degree of certainty the existence of a productive oil vein. But as many of the most practical oil men we have practiced this mode of locating their wells, even if they don't believe in it, their opinions are entitled to respect.

The sticks used will only operate in the hands of certain persons, and with these only in places where oil exists beneath the surface. At least so it is alleged by the experts. The reason given for the vibration and turning of the divining rod is this: The party operating being possessed of an undue amount of positive electricity, this electricity acts upon the sticks as above described, and has consequently some affinity with minerals beneath the earths surface. Now the sum and substance of the whole matter is simply this: As there are no certain indications by which to locate an oil well that will prove productive, it is just as well to try the divining rod. The investment is generally moderate. And this view is the one taken by most of those boring wells.

Among those who have been most successful in the location of oil wells, is Capt. P. Smith, of this place. We have known this gentleman for the past several years, and he is esteemed by all who know him as a thoroughly reliable man in all respects. The services of this gentleman are in great demand, not only here, but in other places. Parties frequently send for him from Ohio, Kentucky and Western Virginia. This popularity has been attained in consequence of his wonderful success in locating wells. The following are among the wells located by him: The Sproull and Hasson Well, on the Hyde & Egbert farm, which lately tapped the Coquette, two wells on the Story farm, one of the Keystone Wells, on Hyde & Egbert farm, one on headwaters of Cherry Run, four miles above Plumer, a number on Pithole Creek, Ocean Well, on the Allegheny River, all of which have proved good producing wells. Mr. S. is a gentleman of too much intelligence to resort to any juggling tricks, consequently it looks as though there was some reality in the subject.

We are not disposed to encourage an implicit belief in the efficacy of the divining rod, because we are not inclined to any such belief. But if there is any certainty of getting a good well by this means, it will certainly be employed by a great many persons in the Venango Oil Regions, whose practical business capacity will compare favorably with any other class. When the "sperrits" give us any more light upon this subject, we shall further expatiate.

146. "FAMOUS OIL FIRMS"—A POPULAR SONG IN 1865

The speculation in oil lands and stocks, especially in 1864-65, stimulated the composition of popular songs and piano numbers about the petroleum industry. "The American Petroleum Polka," "Oil Fever Gallop," "I've Struck Ile," "Pa Has Struck Ile," "Coal Oil Tommy," "Have You Struck Ile?" "Oil On The Brain," and "Famous Oil Firms," were among those that appeared in 1865 or later. The following song, "Famous Oil Firms," appeared in 1865; it was published by Horace Waters, New York City; the words are by E. Pluribus Oilem; and the music is by Petroliana.

There's "Ketchum & Cheatum," and "Lure 'em & Beatum,"
And "Swindle um" all in a row;
Then "Coax em & Lead'em and "Leech'em & Bleed'em,"
And Guzzle em Sink em & Co."
Chorus: Oh! Oh! Oily firms pay,
In Pennsylvania Jest so.
There's "Gull em & Skinner," and "Gammon & Sinner;"
"R. Askal & Oily & Son,"
With "Sponge um & Fleece um," and "Strip em & Grease em,"
And "Take em in Brothers & Run."

There's "Watch em & Nab em," and "Knock em & Grab em,"
And "Lather & Shave em well," too;
There's "Force em & Tie em," and "Pump em & Dry em,"
And "Wheedle & Soap em in view."

There's "Pare em & Core em," and "Grind em & Bore em,"
And "Pinchum good, Scrape um & Friend,"
With "Done um & Brown um," and "Finish & Drown um,"
And thus I might go to the end.

147. "OIL ON THE BRAIN"—POPULAR SONG IN 1865

"Oil On The Brain" was published by O. Ditson & Company, Boston, 1865. The words and music are by Eastburn.

The Yankees boast that they make clocks
Which "just beat all creation."
They never made one could keep time
With our great speculation.

Our stocks, like clocks, go with a spring,
Wind up, run down again;
But all our strikes are sure to cause
"Oil on the brain."

Chorus

Stock's par, stocks up,
Then on the wane,
Everybody's troubled with
"Oil on the brain."

There's various kinds of oil afloat, Cod liver,
Castor, Sweet;
Which tend to make a sick man well and set
him on his feet.
But our's a curious feat performs—we just a
well obtain
And set the people crazy with
"Oil on the brain."

There's neighbor Smith, a poor young man,
Who couldn't raise a dime,
Had clothes which boasted many rents,
And took his "nip" on time,
But now he's clad in Dandy style,
Sports diamonds, kids, and cane;
And his success was owing to
"Oil on the brain."

Miss Simple drives her coach and four,
And dresses in high style;
And Mister Shoddy courts her strong,
Because her "Dad's struck ile,"
Her jewels, velvets, laces, silks,
Of which she is so vain,
Were bought by "Dad" the time he had
"Oil on the brain."

You meet a friend upon the street,
He greets you with a smile,

And tells you in a hurried way,
He's "just gone into ile."
He buttonholes you half an hour;
Of course you can't complain,
For you can see the fellow has
"Oil on the brain."

The lawyers, doctors, hatters, clerks,
Industrious and lazy,
Have put their money all in stocks,
In fact, have gone "oil crazy,"
They'd better stick to briefs and pills,
Hot irons, ink, and pen,
Or they will "kick the bucket" from
"Oil on the brain."

Poor Mrs. Jones was taken ill,
The doctors gave her up.
They lost the confidence they had
In lancet, leech, and cup
"Afflictions sore long time she bore;
Physicians were in vain;"
And she at last expired of
"Oil on the brain."

There's "Maple Shade," "Excelsior,"
"Bull Creek," "Big Tank," "Dalzell:"
And "Keystone," "Star," "Venango," "Briggs,"
"Organic" and "Farrell,"
"Petroleum," "Saint Nicholas,"
"Corn Planter," "New Creek Vein;"
Sure 'tis no wonder many have
"Oil on the brain."

148. "ISLES OF GREECE"

The excitement in petroleum was also reflected in poetry. Many poems about oil appeared in newspapers and magazines; some were original compositions but most of them were parodies. The following poem, taken from *The Venango Spectator* (Franklin, Pennsylvania), January 11, 1865, is a parody on Byron's "Isles of Greece" and its composition is attributed to Samuel C. T. Dodd, Solicitor for the Standard Oil Company.

The land of Grease; the land of Grease!
  Where burning Oil is loved and sung;
Where flourish the arts of sale and lease,
  Where Rouseville rose and Tarville sprung;
Eternal summer gilds them not
But oil wells render dear such spot.

The ceaseless tap, tap of the tools,
  The engine's puff; the pump's dull creak,
The horsemen splashing through the pools
  Of greasy mud along the Creek,
Are sounds which cannot be suppressed
In these dear Ile-lands of the Blessed.

Deep in the vale of Cherry Run
  The Humboldt works I went to see,
And sitting there an oil cask on
  I found that Grease was not yet free;
For busily a dirty carl
Was branding "bonded" on each barrel.

I sat upon the rocky brow
  Which o'erlooks Franklin—far-famed town,
A hundred derricks stood below
  And many a well of great renown,
I counted them at break of day
And when the sun set where were they?

They were still there. But where art thou
  My dry hole? On the river shore
The engine stands all idle now,
  The heavy auger beats no more,
And must a well of so great cost
Be given up and wholly lost?

'Tis awful when you bore a well
  Down in the earth six hundred feet,
To find that not a single smell
  Comes up your anxious nose to greet;
For what is left the bored one here,
For Grease a wish, for Grease a tear.

Must I but wish for wells more blessed
Must I but weep? No, I must toil!
Earth render back from out thy breast
A remnant of thy odorous oil!
If not three hundred, grant but three
Precious barrels a day to me.

What! silent still? and silent all?
Ah no! the rushing of the gas
Sounds like a distant torrent's fall
And answers, bore ahead, you ass,
A few feet more, you miss the stuff
Because you don't go deep enough.

In vain! in vain! Pull up the tools!
Fill high the cup with lager beer!
Leave oil wells to the crazy fools
Who from the East are flocking here.
See! at the first sight of the can
How hurries each red-shirted man.

Fill high the cup with lager beer!
The maidens in their promenade
Towards my lease their footsteps steer
To see if yet my fortune's made,
But sneers their pretty faces spoil
To find I have not yet struck oil.

Place me in Oil Creek's rocky dell,
Though mud be deep and prices high,
There let me bore another well
And find Petroleum or die.
No more I'll work this dry hole here,
Dash down that cup of lager beer.

Thus might, or could, or would have sung
A Byron in this land of Grease,
But as my harp is all unstrung,
I'm forced this oily lay to cease,
And in a rougher measure shall
Give you a lay.

149. "THE BORE OF THE OIL BRIGADE"

The following poem taken from *The Erie Weekly Dispatch,* January 28, 1865 is a parody on Tennyson's "Charge of the Light Brigade."

Half an inch, half an inch,
  Half an inch downward,
Down to the gates of Hell
  Bored the six hundred.
"Downward the Light Brigade
  Bore for the oil," they said
Into the jaws of Hell
  Bored the six hundred.

"Downward the Oil Brigade!"
  Was there a man dismayed?
Not though each lesee knew
  His cash was numbered.
Theirs not to make reply,
  Theirs not to reason why,
Theirs but to bore or die
  Into the gates of Hell
  Bored the six hundred.

Petroleum to the right of them,
  Rock oil to the left of them,
Coal oil beneath them,
  Quietly slumbered.
Stormed at with jeers and yells
  Deeply they bored the wells,
Down they bored the wells,
  Down through the rocks of earth
Down to the mouth of Hell
  Bored the six hundred.

Waved they their leases there,
  With a triumphant air
Each greasy millionaire
  Counted his profits while
All his friends wondered.
  Plunged in the dirty soil

Straight through the rocks they toil,
  While the poor skeptic,
Struck by the smell of oil,
  Thought he had blundered—
Sad he returned, but not
  Yet the six hundred.

Oil was to right of them,
  Oil was to left of them,
Oil was far beneath them
  And yet they had blundered!
Stormed they with curses well,
  While stocks and courage fell,
Badly they wished to sell;
  They woke from their golden dream,
Came from their oil—less wells,
  All that was left of them,
Left of six hundred.

How can their glory fade?
  How will their stocks be paid?
All the world wondered.
  Look at the holes they made,
And honor the Oil Brigade—
  Broken six hundred!

150. James Tarr and the Tarr Farm

The following account appeared in the *Titusville Morning Herald,* November 22, 1871, upon the death of James Tarr, the owner of one of the most famous farms of the oil region.

Five or six years ago no man on Oil Creek was more familiarly known. He belonged to the class of old residents who found themselves made suddenly rich by the possession of oil territory, whose unthrifty soil has for many years previous afforded them but a scanty subsistence. Mr. Tarr was a son of John Tarr, one of the oldest residents of Cherrytree township, Venango county, where he still resides at the advanced age of seventy-five years. James Tarr was about forty-six years of age. He purchased the celebrated Tarr farm about five years before the oil excitement began, and married the widow

McClellan. He possessed but limited means, and carried on the usual farm labors, living frugally, and like many other Oil Creek agriculturists, occasionally varying his occupation by engaging in the business of rafting lumber to Pittsburgh and other points. Mr. Tarr was a representative man of his class—a stalwart, muscular, rough-and-ready customer, who beneath a rough exterior carried a warm heart and generous nature, though of a somewhat eccentric disposition. There have been some notable incidents in his career illustrating these characteristics, and various facetious anecdotes concerning him have traveled the rounds of the press. We shall not give them here, though perhaps a brief sketch of the famous oil farm, which derived its name from him, and gave him oceans of wealth, will prove of interest in this connection.

The history of the Tarr farm, as oil producing territory, dates from June, 1861. when the Crane & Stewart well was struck. The farm embraces a tract of one hundred and ninety-eight acres. It is bounded on the north by the Stone farm, east by high lands, south by Blood farm, and west by Oil Creek. The Crane & Stewart well was on the first lease issued, and flowed one hundred barrels and was on the flat, within five rods of the waterline. The second and best lease was made to Wm. Phillips for the royalty of one-quarter the oil in the barrel; but the Crescent well was struck before the Phillips, and produced between three and four hundred barrels. Then came the Phillips No. 1, which flowed about four hundred barrels. The celebrated Phillips No. 2 was struck in October, 1861, and flowed three thousand barrels. Petroleum was then a drug in the market, and sold for mere a song, the price ranging from fifteen to twenty-five cents per barrel, and on the Blood farm, next adjoining, was disposed as low as ten cents per barrel. It was impossible to provide tankage for the Phillips, and a stop-cock was put in to prevent wastage, and the flow shut off at intervals, until the strike of the Woodford well, about four rods from the Phillips. The Woodford interfered with the Phillips, and a compromise was finally effected by the consolidation of the companies in such a manner that either company drew one-third of the other's production.

The strike of the Woodford occurred on the 18th of July, 1862, and its production was rated at one thousand five hundred barrels. The Phillips flowed two years. These wells, although striking the same crevice, as it was supposed, presented a striking contrast in the appearance of the oil—the Phillips pouring a steady stream of pure oil, and the Woodword giving an adulterated product, which was attributed to the admixture of water.

In the month of August, 1861, Mr. Tarr sold one-half of his land interest in the oil for $20,000 to Clark & Sumner, of New York. The same parties offered $60,000 for the entire royalty, but Mr. Tarr refused to sell. Clark & Sumner re-sold a one-third interest of their purchase to Col. Payne, Bernard Hughes, L. C. Spencer and others, of Rochester, New York, for $35,000, but the rapid decline in the price of oil made these parties regret their purchase, and they subsequently disposed of their interest to the same firm at the buying price. New and paying wells were continually developed, and Mr. Tarr of course, accumulated a splendid fortune. In the fall of 1865, when gold was worth 250, he was offered the handsome sum of $800,000 cash for the fee simple of the Tarr farm, which was equivalent to $2,000,000. He refused it. Up to the month of October, 1865, when the writer of this article visited the Tarr farm and collected the actual statistics for publication in the *Herald*, the total production from June, 1861, covering a period of about four and a half years, exceeded 646,000 barrels. At that time (October, 1865), the oil interests in the farm were owned and controlled as follows: One-half by James Tarr, one-quarter by Clark & Sumner, and one-quarter by the Tarr Farm Petroleum Company.

In the year 1865, Mr. Tarr removed to Meadville, where he built an elegant mansion fronting on Court-house square. In 1867 he announced himself an independent candidate for Associate Judge in this county, but obtained but very few votes.

151. EMPIRE TRANSPORTATION COMPANY AND OIL TANK CARS

In the following account Charles Parker Hatch, Agent for the Empire Transportation Company on Oil Creek, relates his personal experience with the first oil tank cars and how his company developed a new type. His recollections are found in the *Derrick's Hand-Book of Petroleum: A Complete Chronological and Statistical Review of Petroleum Developments from* 1859 to 1899, Derrick Publishing Company, Oil City, 1898, pp. 964-965, 969.

I noticed a firm shipping oil from a private siding at Miller Farm station, which was using a few cars equipped with two tanks each, thereby eliminating the use of barrels in making shipments, which were costly at the time. It naturally attracted my attention, and I notified the president of my company, expressing my opinion that such tank cars would eventually supplant shipment in barrels, and, the company being impressed by the same convictions, had constructed, early in

1866, and sent to me a box car within which had been erected three wooden tanks. I was instructed to be extremely careful of the car; that the thing was an experiment only, and that it was anticipated the car would be returned to the "merchandise trade." Each tank had, of course, a manhole, but upon investigating I found no provision whatever had been made by which I could fill the tanks through the roof. There were no pumping facilities available, and I had only one way before me. I improvised a run-way by which full barrels could be rolled to the roof of the car and there emptied into the tank through holes in the roof—one over the manhole of each tank—and I proceeded to load the car accordingly, but had not gone far when I found the oil leaking from the tanks at a frightful rate (oil was then worth $4.00 to $5.00 per barrel) and I had to set tank men at work to tighten the hoops. Here again I was in trouble, as, owing to the confined space within the car, it was impossible for the men to work, and this necessitated tearing off the side and end boards of the car, where required, and after much loss of oil and hard work the three tanks were filled and the car forwarded, in what condition outwardly can be imagined, and I was in some concern as to its reception by the company in the East. As stated, I had been cautioned to be careful with the car, that it was an experiment, and the car was to be restored to the merchandise trade. As a matter of fact, it looked as though it had been subjected to a cannonading and it was practically ruined, except for an oil car. I did subsequently receive a letter of earnest inquiry, but upon explaining the case and reiterating that tank cars would come to stay I was exonerated.

. . . . .

I removed to Titusville in June, 1866, where I was agent for the Empire Transportation Company and superintendent of the pipe line [the Titusville Pipe Line running from Titusville to Pithole]. In the meantime, however, tank cars had become more frequent, but those of the Erie Railway were all reserved for the use of a single large shipper by the Erie Railway route to New York. The Empire Transportation Company had likewise already adopted the use of oil tank cars and in the winter of 1865-66 several hundred were in use, the number being afterward added to largely from time to time; the shipment of crude oil in the meantime became practically obsolete until the present style of iron boiler tank car was adopted as its standard car by the Empire Transportation Company, and it first put in use in the oil trade by this company in February, 1869, the builders of the cars being Murray, Dougal & Co., of Milton, Pa.

With the introduction of tank cars, we had still one or two more questions to come up. The number of gallons to rate as a barrel; this the Empire Transportation Company fixed at 45 gallons for oil in bulk. The reason for this was that the railroad rate being per barrel in the case of barreled oil, and as it was found these were averaging about 45 gallons actual capacity each, that number of gallons was adopted.

When the boiler tank car was decided upon, in 1872, the known losses of oil due to expansion in the wooden tank cars, which caused the oil to leak out through the manhole, prompted some compensatory device for the boiler tank and the dome was therefore added to the tank, concerning which I had been consulted, especially as to its proper dimensions, and suggested they be made equal in dimension to one gallon for each barrel capacity of the tank car, which for an 80-barrel tank (3,600 gallons) would give 80 gallons capacity for the dome, and this, therefore, was adopted as an approximate minimum.

152. The Coming of the Pipe Lines

The year 1865 and 1866 witnessed a complete change in the mode of transporting oil to market. Instead of the once familiar piles of barrels at the wells and shipping points and long processions of teams and wagons, the oil region was soon covered with miles of pipe lines. The history of the early pipe lines is told in the following article published in the Titusville *Morning Herald,* March 6, 1866.

The first pipe used for the transportation of oil within the oil regions, was laid during the summer of 1863 by Messrs. Hutchins & Foster from the Tarr Farm on Oil Creek to the Humbolt Refinery at Plumer, a distance of about two miles. It was of wrought iron, two inches in diameter. A force pump at Tarr Farm and two at intermediate stations forced the oil through the tube over intervening high land, an elevation of over 400 feet above Oil Creek. Owing to the faulty machinery used for forcing, the enterprise was only partially successful.

During the winter of 1863-64 the same parties laid a cast iron pipe three inches in diameter from the then famous "Noble" well to Miller Farm station on the Oil Creek R. R., a distance of about 3 miles—with an elevation of about 50 feet above the point at which oil was received. The undertaking proved a failure, disastrously so to its projectors. The pipe used was of good quality, provided with Robbins patent lead joint, of the superiority of which their is no question. As in the proceeding case the failure is attributed to the faulty machinery used for forcing the oil; the constant vibration of the pipe, resulting from suddenly varying the velocity of the oil caused the joints to leak and occassionly the pipe to rupture. Good mechanics are of the opinion that these difficulties are not insurmountable, yet prudence will dictate the use of wrought iron, except when the oil is to flow by gravitation only.

Simultaneously with the failure of the Oil Creek pipe Mr. Warren then a refiner at Plumer, laid and successfully operated a two-inch wrought iron tube for forcing "distilate" or distilled petroleum from Plumer to the Allegheny river—a distance of about three miles. In October last Messrs. Van Syckle, Noble and others brought into successful use a line of two-inch wrought iron tubing from Pithole City to the Miller Farm on the Oil Creek R. R., a distance of less than 5 miles. Immediately thereafter, Mr. Warren brought into use a similar line, constructed by himself from Pithole City to Henry's Bend, on the Allegheny river, about five miles distant. Each of the two lines have a capacity of about 1,000 barrels in 24 hours. Messrs. Van Syckle & Co., in Dec., last, laid a second line to the Miller Farm, thereby doubling their ability for transportation.

The works of the "Penn. Tubing Transportation Co." projected by Col. Thomas C. Bates, of Rochester, N. Y., were completed and brought into successful use about the 1st of Dec., last. Their "Tube" is constructed of cast iron pipe, six inches internal diameter, laid with Robbins joint, and extends from Pithole City to Oleopolis, on the Allegheny river, seven miles in length, having an average fall of nearly sixty feet per mile—every part of it being laid on a descending grade. It has a capacity of 7,500 barrels per day, by force of gravitation only.

Two lines of two-inch wrought iron tubing having a capacity of 1,000 barrels per day each, have just been laid from Pithole City to Titusville, having two pumping stations—a distance of 9¼ miles, by Messrs. Philpot, Sherman, Picket and others, and will be opened to the public within a few days.

Two lines of similar capacity have just been completed by Messrs. Henry Harley & Co., from Bennehoff Run to Shaffer Farm on the Oil Creek R. R., a distance over the hills of only two miles. The construction of lines of pipe from Petroleum Centre to Titusville, and from the same point to Oil City is but a question of time; more than one party is in the field for each line.

In all the lines heretofore successfully laid for forcing oil, two-inch wrought iron tubing has been used, partly because it can be more promptly obtained and partly because of less depreciation in its value should it ever be wanted for other purposes. If a greater capacity than can be obtained through a single two-inch tube is required, economy will dictate the using of a single tube of sufficient capacity rather than increasing the number of smaller ones, because the prime cost does not increase with the capacity and because the power necessary to overcome friction *decreases* directly as the diameter increases. It requires a pressure of 52 lbs. per square inch to force 1,000 barrels of oil in 24 hours through a straight horizontal pipe one mile long and through a 3-inch tube 34⅔ lbs., a 4-inch tube 26 lbs. per square inch. The pressure necessary to overcome friction will also vary as the square of the quantity delivered, for example in the case supposed for a two-inch pipe one mile long to deliver 1,000 barrels requires a pressure of 52 lbs. per square inch; 50 barrels would require but 13 lbs.; 2,000 barrels 208 lbs.

The pressure must increase substantially as you increase the length of pipe to accomplish the same result.

In all cases there must be added a force sufficient to overcome the resistance due to curves (generally 10 to 30 per cent, according to circumstances), and also a force sufficient to overcome the pressure due to the difference in the level between the point of receiving and the highest point on the line, amounting for oil to 40 lbs. per square inch for each 100 feet difference in level. For descending grades a corresponding deduction will be made.

The cost of lap welded tubing (the only kind which should be used) fluctuates with the value of iron and with the supply of and demand for the same. At present it can be bought at the manufacturers for about 40¢ per lineal foot for 2-inch tubing—delivered and distributed say 45¢. Cost of trenching and laying, to the usual depth of thirty inches varies with circumstances. Under favorable circumstances about $1,000 per mile. Force pumps and steam engines combined cost about $800 each. Steam boiler capable of running two pumps $2,000. Pumping stations should not generally be more than 5 miles apart.

Tankage costs 65¢ per bbl. for wood and $1.00 for iron.

The weight and cost of different sizes of tubing increase nearly as the square of the diameter *to-wit:* 2 inch, 40¢, 3 inch 90¢, 4 inch 160¢, &c, &c.

The cost of forcing oil after works are completed will not generally exceed 5¢ per bbl. for each pumping station, when a constant supply is furnished.

153. TEAMSTERS USE VIOLENCE AGAINST THE PIPE LINES

As a result of the introduction of pipe lines, the cost of transporting oil was reduced to the uniform rate of $1.00 a barrel, which ruined the teamsters' business. Hundreds of teamsters now faced technological unemployment, but they did not give up without a violent struggle. The following article, published in the Titusville *Morning Herald,* April 21, 1866, describes one of the several attempts on the part of the teamsters to thwart progress.

We gave on Thursday an account of the burning at Shaffer on previous night of two oil tanks, belonging to Harley & Co., proprietors of the Bennehoff & Shaffer Pipe Company. It was an incendiary fire, but very fortunately the conflagration was prevented from extending to the adjoining tanks, and the object of the demonstration was only partially effected.

On Friday morning about 2½ o'clock the operation was repeated, under the auspices of a formidable mob, numbering between seventy-five and one hundred men, armed with revolvers. They rushed down from the timber and underbush at the hillside, and before reaching the tanks halted, when the ringleader notified the watchmen that they intended to destroy the tanks and called upon them to disperse, or they would be shot down. The watchmen hesitated, but made no reply. The mob then fired upon them, but without effect. The watchmen retreated and discharged their own revolvers at the mob, and it is supposed with effect. One man was heard to explain, "My God! I am shot."

Another of the mob was seen to throw a fireball into one of the tanks, and in an instant the flames burst forth, communicating of course to the adjacent tanks. There were five in all, but fortunately the oil had been drawn down on the previous day, and there were only 800 barrels of oil in store.

The mob remained near by, yelling and firing in the air until all the tanks were in flames; screening themselves behind the trees, and threatening to shoot every person who should approach. They then retreated into the woods, and mounted the hill, and a few of their number were seen to cross the creek some distance below.

The town was not particularly endangered by the conflagration, on account of the remote locality of the tanks. The oil ran down to the railroad, and conductor Parsons directed the locomotive to be brought out of the engine house, but the latter was uninjured.

Harley & Co's. loss is estimated at $8,000. At the previous fire, the loss was about $10,000. The burning oil ran down to their shipping platform, which was entirely destroyed. The railroad ties were also burned and the rails for a distance of nearly twenty yards were so warped by the heat as to require substitution. Four tank cars belonging to Deane & Co's., tank line, together with four hundred and fifty barrels of oil on the platform, and about three hundred barrels in the tank cars, were also consumed.

The pipes of the company were not interfered with. When we visited the place yesterday noon they were again in operation, the pipes having been extended to the railroad depot and discharging into tank cars. The burned platform is in course of reconstruction and will be completed today. New tanks will be erected in the course of twenty-four hours, and the operations of the company will not be suspended a single day in consequence of this disaster.

Harley & Co's. pipes extend from the wells on Bennehoff Run to the storage and shipping point at Shaffer. There are two pipes, and the distance is two and a half miles.

Their capacity of transportation is about 2,000 barrels per day. The average transportation has been 1,500 barrels, yielding a revenue to the company of $750 per day, and approximately $200,000 per day.

This process of moving oil has entirely superseded the old method of hauling oil in barrels from Bennehoff to Shaffer, and of course the teamster's occupation is gone. There have been murmurings both "loud and deep" on the part of the aggrieved, ever since the new line went into operation on the 10th of March. The company were apprised of their danger, and established a patrol on the route of the pipes, and a relief guard at the receiving tanks; but they were unprepared for so formidable an onslaught as that of Friday morning. It is asserted that the raiders are fully organized and disciplined, and have threatened to destroy the property of all in the oil region.

The tanks at Miller Farm, belonging to Mr. Van Syckel, and the tanks of Sherman & Picket, at Titusville, it is alleged, are both marked for destruction. What course the owners of the property will adopt for its protection it is not yet determined. That our own citizens will cooperate with them in such measures of defence as may seem expedient, we do not doubt.

A liberal reward for the detection and arrest of any of the parties engaged in these violent acts, would probably have the desired effect.

154. A Week on Oil Creek

The following account of a week spent on Oil Creek was written by Professor Charles A. Seely for the *Scientific American.* He emphasizes the new inventions which have appeared in the oil region. The article was reprinted by the Titusville *Morning Herald,* September 1, 1866.

I have spent a week on Oil Creek. From my point of departure—the Crittenden House, a very excellent hotel at Titusville—I have made daily excursions up the neighboring "runs," and over the "farms" which are famous in the history of oil.

This is the region of wonders. I have picked up enough material out of which to make several books, or on which to found stories that would require a lifetime to relate. There is something here for every pleasure-seeker and every lover of the marvelous. The *blase* gentleman who looks down the crater of Vesuvius and finds nothing in it, may still hope to experience a new sensation. If he is not moved by what may on any day be observed, let him wait a little while for a flood or a conflagration!

But the *Scientific American* calls for practical facts, and out of my budget I select a few which, by reason of their novelty and utility, I consider most presentable. The inventor has recently been on Oil Creek, and his devices has changed the whole order of thought and action so quickly and thoroughly that one is reminded of the shifting of scenes at a theatre. These devices are what I mean above by practical facts; I proceed to exhibit some of them.

Harley's Pipes.—A few months' processions of wagons, carrying oil in barrels, were constantly floundering up and down the mud farms on Oil Creek; the profane shouts of the teamsters filled the air. But today all is changed; no more barrels, no wagons! I trust the poor horses and teamsters are engaged in better business. The music of the evening, the pump, and the drill was all the sound I heard. It is to Harley's pipes that much of this happy change is due. Mr. Harley has laid iron pipes over the hills, down the "runs," across the "farms," and stops only when he reaches the railroad station. Through these pipes oil flows almost literally out of the wells aboard of the railroad car. The propelling agent is, of course, the steam pump. Thus oil, 600 feet below the surface of the earth, at Oil Creek, reaches Jersey City, a distance of over 400 miles, without having been touched by the hand of man. Many miles of pipes are now in successful use, and Mr. Harley proposes to lay a line of pipe from Petroleum Centre to the Allegheny River, a distance of about ten miles. I wish the politicians would lay their pipe to as good purpose as does Mr. Harley.

Car Tanks.—When it was the fashion for wells to flow at the rate of thousands of barrels per day, it was found impossible to procure with sufficient promptness vessels to contain the oil. There was an immense demand for barrels, and all the coopers were busy; there was danger that the barrel stock of the country would soon be exhausted. When barrels became plentiful the fact was developed that many evils attended their use, and they must be abolished. Harley's pipes and storage tanks—some of them are of the capacity of thousands of barrels—relieved the farms and the runs, and at last the car tanks took the place of barrels on the railroads. Today crude oil is not carried by rail in barrels. The car tanks are a permanent fixture on the car. Two tanks, each of the capacity for forty barrels, built of clear pine planks, and provided with closely fitting covers, are attached firmly, side by side, to the floor of the truck. I suppose there are in constant use thousands of these oil cars. Some of them may be seen any day in Jersey City, and on a journey by the Erie Railway they will be found everywhere along the road.

Col. Robert's Torpedoes.—The natural reservoirs of oil are supposed to be fissures and other cavities in the rock. If the boring tools do not penetrate one of these cavities no oil is "struck"; a miss was supposed to be as good as a mile. The reamer which enlarges the diameter of the work of the drill only an inch, has, in several cases, struck oil and made a valuable well out of what otherwise would have been a "dry hole." How tantalizing it must be to the man who gets no oil after spending $10,000 in boring, to reflect that he may have attained to within half an inch of a fortune! But now Col. Roberts, with his torpedo, infuses new hope among the proprietors of dry holes, and he promises more rapid fortunes to those who own the paying wells. I find an excellent description of the torpedo and its uses on Page 54, current volume of the *Scientific American,* and I have only to add that I am a witness to the great utility of the invention. While on Oil Creek I visited personally twenty-one wells in which thirty torpedoes had been exploded, where, in every case, the well had been improved, and the aggregate increase was upward of 1,200 barrels of oil per day. The increase of production on Oil Creek, by reason of the torpedo, probably exceeds 3,000 barrels per day. There used to be talk about sinking shafts eight or ten feet in diameter down to the oil strata, and then running drifts after the oil reservoirs. The torpedo seems to be the practical realization of that fanciful dream.

155. The Benninghoff Robbery

For many years prior to 1859, John Benninghoff had wrung a bare subsistence from the stony soil of his farm, which lay across Benninghoff Run, Western Run, and Pioneer Run, near Petroleum Centre. Since most of his farm was highland territory, oil operators did not look with favor upon it until the fall of 1865, when one completed a well which produced about three hundred barrels a day. Benninghoff was now besieged by others who wanted leases. Small lots were taken at boom prices and one-fourth the oil, and shortly a dozen wells were being drilled all over his place. Benninghoff soon had an income estimated at $6,000 a day; his royalty in November, 1866, at a time when the price of oil was low, exceeded $33,000. Distrustful of bankers and banks, he purchased two safes in which to keep his wealth. The whole community knew that he kept his money in the house and his friends advised using a bank, but Benninghoff would not listen. On the evening of January 16, 1868, robbers appeared at the Benninghoff home and made away with a large portion of the money. It was the most sensational crime committed in the oil region in the early days. Benninghoff never recovered the stolen money but three men were ultimately convicted at Franklin for participating in the robbery. The following account is taken from the Titusville *Morning Herald,* January 18, 1868.

Shortly after 7 o'clock, the family, consisting of Mr. John Benninghoff, his wife, and niece, and two hired men, were sitting in the kitchen, when the door was opened and four men walked in. Three of these men were of medium sizes and the fourth was tall and heavy, and all of them were masked with handkerchiefs, cloths or comforters. On entering the room the men drew pistols and presenting them at the heads or breasts of the family, threatened them with immediate death if they should make the least noise. So completely were the family taken by surprise that but little resistance was offered except by Mr. Benninghoff, who cried out lustily on their first appearance. The first cry that he raised had scarcely left his lips when he was attacked, by one of the ruffians, who was soon assisted by one or two of the others. Mr. Benninghoff is now in his sixty-seventh year, but notwithstanding his advanced age, is still possessed of considerable strength, and he exerted it to the utmost. His strength was, however, entirely inadequate to cope with that of two or three middle aged men and he was soon thrown to the floor. The ruffians then struck him in the face and stamped on various parts of his body, and then half dragged half carried him to an adjoining bed room. All this time Mr. B. was by no means idle, but was putting forth his best endeavors to escape, and to attract attention from the outside. After they got Mr. B. somewhat under their control, they tied his arms and legs and threw him on the bed and wrapped the bed cloths tightly about him. They then rifled his pockets and took from one of them his pocketbook, containing a small amount of money and a key to one of the safes. After seeing that the cords which bound his limbs were fast and covering him more closely with clothes, they left him in a powerless condition.

While Mr. Benninghoff was struggling with two of the ruffians, the other two had intimidated the two hired men, and they were soon tied on the chairs in which they sat, at the time when the robbers first made their appearance. These men offered but very little or no resistance and in a very brief space of time they found themselves in a helpless condition. During the fracas, Mrs. Benninghoff managed to secure a revolver, which she handed to one of the hired men, but he, through fear or some other emotion of a like character, did not use it, and immediately afterward one of the roughs got possession of it. Mrs. Benninghoff was seized, dragged into an adjoining room, and bound. Mr. Benninghoff's niece was taken into a room near the kitchen and fastened to a lounge.

After every person in the house was securely fastened and an attempt had been made to open a combination-lock safe, two of the party started upstairs to the room in which an old fashioned safe was kept, without asking any questions; while the other two stayed below and kept guard over the family. The key of the safe on the second floor had been taken from Mr. Benninghoff's pocketbook, and the villians succeeded in opening the safe without difficulty. One drawer in the safe was overlooked, but all of the rest of it was thoroughly ransacked. The safe contained nearly $225,000, and the villians succeeded in taking $210,000. Of the $210,000, there were $20,000 in government bonds, and the rest in greenbacks and national currency. The drawer that was overlooked contained a quantity of gold and silver coins, amounting in all to a comparatively small sum. In the haste of the search after plunder, a package containing $1,000 was laid among a quantity of papers near the safe and left, and in another part of the house a second package, containing nearly $6,000 was dropped.

After ransacking the safe, the whole party returned to the kitchen, and after ascertaining from a member of the family that Mr. Joseph Benninghoff had gone to church, and that no other person would be likely to visit the house during the night, the villians proceeded to make themselves comfortable. During their stay, which lasted about an hour, they appeared to be awaiting the return of Mr. Joseph Benninghoff, and they consumed a quantity of bread and milk.

Finally the villains concluded to leave, and making a slipnoose, they put it round the neck of one of the hired men and led him to the barn and forced him to harness a horse to a cutter. The man was then led back to the house and retied. Two other horses were taken from the barn, and the whole party started off at a brisk pace. As soon as the last man left the house Mr. Benninghoff's niece managed to loosen the cords with which her arms were bound. The rest of the family were then released, and the men started out and alarmed the neighbors, after which telegrams were sent in all directions to the authorities of the different places, apprising them of the robbery.

After leaving the house, the five men with the horses and cutter proceeded up Benninghoff Run about one-half of a mile, when the cutter was smashed and the horses were turned loose, where they were found yesterday morning. From where the cutter and horses were abandoned no further traces of the party could be found.

The safe that was not opened, contained a much larger amount than that carried off.

Yesterday morning a reward of $10,000 was offered for the arrest of the robbers and return of the money, and later in the day it was increased to $20,000.

156. U. S. NAVY OPPOSES USE OF PETROLEUM AS A FUEL

Between 1864 and 1867, the U. S. Navy conducted more extensive investigations of the possibility of using petroleum as a substitute for coal in naval vessels. The following report written by B. F. Isherwood, Chief of the Bureau of Steam Engineering, and dated October 25, 1867, is taken from the "Report of the Secretary of the Navy for 1867," *House Executive Document,* No. 1, 40 Cong., 2 sess., pp. 173-175. Government Printing Office, Washington, 1867.

A very complete series of experiments have been made to ascertain the value of crude petroleum as a fuel for generating steam in marine boilers, and of the merits of different methods for effecting its combustion. The subject is of general interest, as it affects all who use artificial heat for any purpose; for, if it were proven that the production of heat by the combustion of petroleum was more economical than by the combustion of coal, the industrial arts would everywhere obtain a proportionate extension and mankind a corresponding benefit. The substance itself is found in various parts of the world, and could doubtless, be procured in quantities sufficiently large to affect commercial values were its production stimulated by demand. As in the United States it is abundant and easily obtainable, we have, in addition to the general interest in its use, a very important special one in its ownership.

The immediate concern of the navy in this subject is to know whether the substitution of petroleum for coal as a fuel on board its steamers be practicable, and, if practicable, desirable in point of economy.

With regard to practicability, the numerous, extended, and varied trials made on the three experimental boilers at the Brooklyn navy yard have demonstrated that the method invented by First Assistant Engineer Clark Fisher, United State navy, with which those trials were made, is a complete success, leaving nothing to be desired in simplicity of apparatus, in safety in its use, and in facility of management and adjustment. This apparatus can be so cheaply manufactured and attached, is of so little bulk and small weight, that there are practically no objections to it as regards these important particulars. The engineering problem may then be considered as satisfactorily solved, and there remains only the commercial one to be examined.

With Fisher's apparatus it is found that, other things equal, the heat generated by the combustion of one pound of crude petroleum vaporizes fifty-two per cent more water than that generated by the combustion of one pound of the combustible portion of anthracite; by combustible portion is meant the part which remains after deducting the earthy matter. To cause the complete combustion of petroleum, about one-twelfth of the steam generated by it has to be used in the furnace, leaving the effective vaporizations produced by the two fuels to compare as 1.00 for the anthracite combustible and 1.40 for the petroleum. And, as the earthy matter of good merchantable anthracite is about one-sixth of its weight, the effective vaporization produced by equal weights of anthracite and petroleum will compare as 1.00 for the former to 1.68 for the latter. These figures are, of course, for the same weight of anthracite combustible and of petroleum consumed in the same time in the same boiler.

The advantages of the substitution of petroleum for anthracite would then be a reduction of forty and a half per centum of the weight of fuel now carried in the vessel; and as the cubic foot of petroleum weighs at ordinary temperatures fifty pounds, while the cubic foot of anthracite as stowed in bunkers weighs fifty-three and one-third pounds, there would be a reduction of bulk of thirty-six and a half per centum.

As, however, the iron tanks required to hold the petroleum would weigh considerably more than the bunkers holding the anthracite, and as some space must necessarily be lost in storing them, it may be assumed that the substitution of petroleum for anthracite would reduce both the weight and space required for the latter about one-third. But if safety required the petroleum tanks to be immersed in water, as at present seems probable, then no saving of weight could be effected, but only a saving in the space occupied. The weight of the boiler, including its water, and the space occupied by it and the fire-room, could be reduced twenty-eight and a half per centum. The first cost and after repairs of the boiler would also be reduced to the same extent. The number of firemen required with petroleum would not exceed one-fourth the number required with anthracite, leaving their pay and subsistence to be saved as well as their weight and that of their effects and subsistence, and the space occupied by all three on board. The petroleum fire starts into full activity instantaneously, and is as instantaneously extinguished, while the coal fire requires about an hour to attain steady action and as long to burn out. These are very important advantages, but against them are to be placed—

1st. The damage resulting from the very volatile gases which petroleum emits at ordinary atmospheric temperatures, and which, when mixed with air, are highly explosive. In the hold of steamers the temperature around the engine-room and boiler-room averages as high as one hundred degrees Fahrenheit, and greatly aggravates this danger. Indeed, when it is considered that a medium-sized navy steamer would have to carry about two hundred and fifty tons of petroleum, which, however well protected in tanks, is liable by a single shot to be poured in large quantities into the boiler-room, where its gases, mixing with the air and ignited by the fires of the furnaces, would explode with terrific effect, liberating other quantities and destroying almost instantaneously both vessel and crew, this objection seems so serious that the most overwhelming advantages are required to justify the risk of its use. As merchant steamers do not engage in battle, this risk would be less for them, but it would cause a high rate of insurance and the loss of passenger transportation, even if officers and crew could be found for excessive pay to brave the danger.

2d. Owing to the rapid conversion into gases of a portion of it at ordinary atmospheric temperatures, the loss of petroleum by volatilization is very great, and this loss proportionably increases its cost, while it decreases its advantages as regards bulk, weight, and evaporative efficiency.

3d. And, due to the same fact of its easy gasification, it fills the air with a noisome stench, which, in the confined hold and badly ventilated apartments of vessels, would be intolerable.

4th. The price of crude petroleum is by weight about eight times that of coal, and a large demand would increase the disparity.

From these considerations it appears that the use of petroleum as a fuel for steamers is hopeless; convenience is against it, comfort is against it, health is against it, economy is against it, and safety is against it. Opposed to these the advantages of the probably not very important reduction in bulk and weight, with their attending economies, cannot prevail.

157. U. S. Navy Experiments with Petroleum

The first two of the following accounts of the U. S. Navy's experimentation with petroleum as fuel for its ships were published as dispatches from Boston in the *New York Times* and reprinted in *The Venango Spectator,* June 28, 1867. The third dispatch, dated July 3rd at Boston, telling of the third sea trial of the Palos, was published in the *New York Times* and reprinted in the Titusville *Morning Herald,* July 10, 1867.

[First Dispatch]

Boston, June 14, 1867.

During the past four weeks a series of very interesting experiments have been made with petroleum on Board the United States gunboat Palos, lying at the Charlestown Navy-yard, for the purpose of testing the practical application of that combustible oil as a means of fuel. Those experiments have attracted the attention of scientific men and others, but more especially the Navy Department, which some time since appointed a Board of Commissioners to test the use of crude petroleum as fuel. That commission consists of Chief Engineers Alex. Henderson, John W. Moore, Henry W. Baker and M. Kellogg, and twelve assistants. The *Palos,* on board which vessel the experiments have taken place, is admirably adapted for that purpose. The inventor Col Henry R. Foote, of Tennessee, and Stillman B. Allen, proprietor, have both been present to assist in perfecting the experiments which to-day culminated in a trial trip of the *Palos* down the harbor.

The machinery employed in using the crude petroleum, from the moment it leaves the tank until it acts as fuel, is very simple, economical and durable. It has been described as follows: On the deck of the vessel are two large iron tanks filled with petroleum, and attached to these are common gas pipes, which supply the oil for the retort below. The retort is made of boiler iron, and in it is inserted a number of small pipes, which spread out in arms, with perforations or openings for supplying 125 burners. The steam taken from the boiler is passed through a coil of iron pipe charged with iron filings, which are arranged so as to be exposed to the hottest part of the fire. The coil of iron pipe and filings, becoming red hot, decompose the steam, separating the oxygen and hydrogen, and as a natural consequence the gaseous components enter the retort and mingle with the vapor of oil. By means of an air-pump, atmospheric air is forced into the retort at the same time the steam is decomposed, and mixes with the elements of the fire. These combined gases then escape into the furnace, igniting from the intense hot flame. During this chemical combination, the oil does not come in contact with the fire, but is run into the iron retort before alluded to, which is kept hot by a series of heaters underneath. The oil is only supplied as fast as it can be converted into vapor. The supply of steam and air and oil is graduated by means of small throttle valves, and the fire increased or diminished at will.

[Second Dispatch]

Boston, Friday, June 14.—A good deal of interest was manifested by scientific men, engineers and others in the experimental trip of the *Palos* today. During the three months that the vessel had operated her machinery at the dock, the use of petroleum as fuel was considered a success, but the trip to-day was designed to demonstrate that with this new agent sufficient steam could be generated to propel the vessel through the water at a rate of speed greater than with the use of coal, and at a comparatively small expense. The *Palos* is a fourth-rate gunboat with an engine of nominal capacity of 350 horse power. On her trial trip down Boston harbor when first built, the *Palos* used coal, started with forty-five pounds of steam, which ran down to twenty pounds and made only eight miles an hour. The result of the trip to-day, with crude petroleum as a substitute for coal, is destined to work a revolution in the material employed for generating steam in boilers.

The *Palos* left her dock at the Navy yard at 10:50 o'clock, having on board the inventor of the new fuel, and machinery for using the same, Col. Foote, J. H. Winsor and Stillman Allen, assignees of the patent and general manager of the business; Chief Engineer Alex. Henderson, of the Charlestown Navy-yard, and Chairman of the Board of Engineers appointed by the Government to superintend and report upon the result of the experiments; Chief Engineers Kellogg, Moore and Baker; Assistant Engineers Henry W. Scott, of New York; Hugh Pilkington, C. W. Pennington and M. Heath; Ex-Chief Engineer A. C. Stimers, of New York, together with a number of scientific men and representatives of the Press. The boat was commanded by Acting Ensign Charles A. Blanchard and Mr. Wallace, Executive Officer. H. W. Scott and C. W. Pennington, First Assistant Engineers, had charge of the engines; the inventor, Col. Foote and Henry Lester had charge of the fires. Three furnaces were used, and in a few minutes after leaving the wharf the indicator marked forty pounds of steam, and as the vessel steamed by the wharves and shipping that amount was maintained. Nearing Governors Island, the *Palos*, though a propeller, was observed to gain rapidly on the pleasure side-wheel steamer *Ulysses*, which had started some time previously. The first three miles were accomplished in 15 minutes, or at the rate of 12 knots an hour, which was even now better speed than the vessel had ever reached with coal, or running four miles faster than her usual average speed.

At this point of the trip an invitation was extended to descend to the fire room. Here were found two men doing the work of eight persons, and in the place of ashes and dust were cleanliness and ventilation. To the surprise of old firemen the floor was carpeted. A second observation showed that the gunboat moved 11½ miles in 48 minutes, or at the rate of 14 miles an hour, fairly outdoing herself and surprising the most ardent believers in petroleum fuel. While going at this rate steam was constantly increasing.

Boston Light reached, the steamer's head was turned toward the city, and after a delightful sail among the islands, the Navy-yard wharf was reached in an hour and 55 minutes, during which time the *Palos* had steamed 25 nautical miles and generated steam more rapidly toward the end of the trip than at the start. The fires were extinguished almost instaneously. Less than four barrels of petroleum did the work ordinarily accomplished by six or eight tons of coal, and it was demonstrated in the most brilliant and satisfactory manner that a desideratum had been gained which adds 50 per cent to the speed of steam vessels without altering the existing machinery.

In a few weeks the United States gunboat *Leyden*, an exact counterpart of the *Palos* and a coal-burner, will make an excursion down the harbor in company with the *Palos*, for the purpose of demonstrating the inferiority of coal as compared to the economy and superiority of petroleum as fuel.

It was agreed on all sides that the day had inaugurated an important era in the history of ocean navigation.

The *Palos* was regarded as one of the slowest gunboats in the navy, but the event of to-day has proved her one of the fastest, notwithstanding chief engineers inside and outside of the navy look with distrust upon petroleum fuel, and remarked the machinery for applying it as dangerous. Scientific men regard the result so significant that the facts were telegraphed this evening to Europe, where similar experiments are being made in English and other dockyards.

[Third Dispatch]

The steamer left the Navy-yard about 12 o'clock, under the charge of Capt. C. W. Blanchard, Commander, having on board Chief-Engineer Kellogg and other member of the Board of Experiment, besides J. C. Cook, Professor of Chemistry in Harvard University; Gen. F. A. Osborne, Capt. Moore, U. S. Navy; Ex-Mayor J. V. C. Smith, of Boston; Drs. Calvin Ellis, H. R. Olliver, C. T. Page, Sheldon and other scientific men, and J. H. Sears, Messrs. Merrill, of the Downer Kerosene Company; Chas. W. Cartwright, President of the Manufacturers' Insurance Company, and other merchants of this city; also Henry R. Foote, Stillman B. Allen and J. H. Windsor, owners of patent. Some changes have been made in the steam connections with the donkey for driving the air-pumps, and also on the coils of pipe on the retorts used for preparing the petroleum for use. These changes worked to decided advantage on this occasion. All the other arrangements in the machinery are substantially the same as on previous trials.

By order of Commodore Rogers, the officers of the *Palos* were instructed to sail a distance of forty five miles, and to make tests of the power of the fuel to generate the steam in the boilers over a measured distance, which was from Buoy No. 7 to Nahant, a distance of seven and sixty one-hundredths miles. The distance from Long Wharf to Nahant, fifteen miles, was accomplished in one hour and ten minutes; the first regular test being between Buoy No. 7 and that of Nahant. On the run back the trip was made to Fort Independence in forty-six minutes, which was regarded as fast time for a gunboat, which had never made over eight and a half miles an hour with coal. The rate of twelve knots was made against wind and tide, with a pressure of thirty-two pounds of steam. The vessel was fourteen inches deeper in the water than on previous trials and was in bad trim. The virtue of petroleum in this instance was demonstrated in a very striking manner. Making a long turn off Fort Independence the *Palos* passed the buoy and proceeded to Nahant, again making still better time, although the effect produced by the mingling of salt water with the fresh water in the boilers, as in all steam vessel boilers, tended to reduce the quantity of steam and speed during the third run. The invited guests on board so well pleased were they with the result of the experiment, organized a meeting to give expression to their views on the subject of the use of petroleum as fuel. The meeting was called to order by Ex-Mayor J. V. C. Smith, of Boston, and was organized by appointing Mr. Charles W. Cartwright, Chairman, who made a few remarks, in which he extolled the success which had attended the experiment. The following resolutions, expressive of the sense of the meeting, were introduced and passed unanimously:

Resolved, That we have witnessed with great interest the third sea trial of the United States steamer *Palos,* using crude petroleum instead of coal, and cheerfully bear witness, that in our judgement, the apparatus is simple, practical, efficient and safe; that a run of between forty and fifty miles in the open sea, at a speed of fifty per cent greater than was ever made with coal, and with a steady and uniform pressure of steam, demonstrates the practicability of using petroleum as fuel, and the incalculable value of Col. Foote's invention.

Resolved, That the commercial, manufacturing and mercantile interests of Massachusetts and the world demand cheap freights with rapid transportation, and that the experiment we have to-day witnessed gives promise of great results to be obtained by this discovery.

Resolved, That the thanks of the commercial world are due to Col. H. R. Foote and his associates for the discovery, which must soon produce a revolution in steamship navigation.

Resolved, That our thanks are due to the naval officers attached to the *Palos* for courtesies extended to us during the trip.

Speeches were made by Prof. Cook, Dr. Smith, Capt. Moore and others. Prof. Cook said that the fact of burning of petroleum and applying the heat as a generator of water in steamboat boilers has been fully established on the present occasion. The only question that now remained to be settled was its safety and economy, and that question was being settled by just such experiments as he had witnessed to-day. He had not the slightest doubt as to the feasibility and practicable application of petroleum as a substitute for coal on ocean steamships.

Captain Moore, one of the oldest officers in the navy, and who was present at Fulton's first trial of the application of steam to boats, said that the experiments now being made on the Palos were an earnest of the faith the Government had in Petroleum.

The following is a condensed statement of the results of the trial: First run, 761-100 miles; time, 50 minutes; pounds of steam, 30; revolutions, 2,528. Second run, time 55 minutes; pounds of steam, 32; revolutions, 2,785. Third run, time 40 minutes; pounds of steam, 34; revolutions, 2,260. Fourth run, time 50 minutes; pounds of steam, 32; revolutions, 2799. The measured running time was thirty and a half nautical miles, which was accomplished in a total of three hours and fifteen minutes. The whole running time was four hours and ten minutes. Only two barrels of oil per hour were used in the trip. The *Palos* reached her wharf about 4:30 o'clock; all on board were highly gratified at the result of the day's work and the trial was regarded as a great success. The next trial will be made next week, when the *Leyden,* a coal burner and a counterpart of the *Palos,* will make a trip. With new air-pumps in the *Palos,* remarkable results are expected on the next trial.

158. Petroleum as a Fuel for Locomotives

Petroleum was primarily used in the beginning of the industry as an illuminant. The following article, however, taken from *The Venango Spectator,* October 11, 1867, describes an experiment in using petroleum as fuel for a locomotive.

A trial of the capabilities of petroleum as a fuel for producing steam was made on one of the "dummy" locomotives of the Hudson River Railroad last week. The mode of using petroleum was the method introduced and patented by Mr. Calvin Pepper, and its chief peculiarity consists in the dispensing with the ordinary "burners" and "retorts," and burning the oil in connection with water, from a surface of sand. The grate and ash-pan of the furnace had been removed, and in their places was substituted a circular pan of cast-iron, about eighteen inches in diameter, and eight inches in depth, having a perforated bottom, covered with a disk of wire gauze. The pan is filled with coarse sand, and the oil is conducted from its receptacle, through a pipe, into a mass of sand. Another pipe conducts water from the tank of the locomotive into the sand, and the oil rises to the top of the water, and burns on the surface of the sand. The water, besides furnishing a convenient means for controlling the strength of the fire, also becomes decomposed by the heat, and aids the combustion of the oil. The bottom of the fire-box is made air-tight, and a blower, driven by steam power, furnishes a draft, which may be regulated at pleasure. If preferred, the exhaust steam from the engine, or a steam-jet from the boiler, may be used to supply the draft. The boiler used in the experiments was of the upright tubular style, about four feet in diameter and ten feet in length, and two-thirds filled with cold water at the commencement of the experiments. Twelve quarts of crude petroleum and three quarts of gasoline for lighting were poured upon the sand in the fire box. In fifteen minutes' time from the application of the match vapor began to show at the upper guage cock. In about thirty-eight minutes, with an efficient draft of air, the gauge indicated five pounds of steam, and in fifty minutes it had risen to thirty. When the pressure reached one hundred and ten pounds, the locomotive was started, and run about twenty minutes, when it was found that the apparatus for supplying the air draft was so deficient that the supply of steam could not be maintained. Further experiments were therefore postponed to another day. Though the fire was kept up nearly two hours, only about fifteen gallons of petroleum were expended.

159. Boston Uses Petroleum in a Fire Engine

The following article appeared in the *Boston Traveler* and was reprinted by *The Venango Spectator,* October 11, 1867. It reports the successful use of petroleum in one of the Boston fire engines.

It so happened that Chief Engineer Damrell yesterday ordered a public trial of Eagle No. 3 steamer, using oil instead of coal, in her furnace, for generating steam, to take place this morning. The last private experiment was so satisfactory to the chief that he ordered the machine into active service.

The fire this morning afforded a splendid and unexpected opportunity to test the ability and qualities of the new fluid-fuel and its apparatus. When the alarm was given the steamer started in the direction of the fire, and arriving at the scene of the conflagration her steam gauge indicated 100 pounds of steam. Only three minutes was consumed in raising this amount of steam. She remained on the ground six hours and a half and during that time the steamer averaged 80 pounds of steam and 120 pounds of water pressure, and 100 pounds of water pressure with two streams.

Another remarkable and important fact demonstrated was the steamer, using oil, gained 30 per cent of water pressure over any other engine at the fire, by reason of not choking the exhaust. This is regarded as a great desideratum gained. Another great point showed was while the streets leading to the fire were choked up with smoke thrown off by other steamers, scarcely any smoke came from No. 3, using the new fuel.

Chief Damrell and his assistants, beside members of the Aldermanic Committee on the fire department, who were present at the fire and witnessed the working of No. 3, expressed themselves as highly gratified at the result, and declared the use of liquid hydrocarbon fuel in a steam fire engine as a decided success. The oil used on this occasion was petroleum.

160. SHAMBURG

Although the Shamburg well on the Stowell farm opened up a new field in 1866, the severe business depression then enveloping the oil region prevented any extensive operations from being undertaken. The completion of the Jack Brown well on the Atkinson farm started a rush, however, in December, 1867, to the little settlement now called Shamburg. Soon other villages—Atkinson and Backus City—developed, and hundreds of buildings were being constructed and new wells were being drilled all over the Shamburg area. The scene of this speculative boom was about two miles southeast of Miller farm, three miles south of Pleasantville, six miles from Titusville, and four miles northwest of Pithole. The following account of the Shamburg area is from the *Titusville Morning Herald,* June 29, 1870.

Six miles below Titusville, and upon the elevated lands contiguous to Oil Creek, is located that portion of the producing oil field known as Shamburg, and the town bearing the same name. Though comprising several farms and tracts, each is a distinctly defined oil field by itself, yet throughout the entire region, the territory in this vicinity has been and still is known as Shamburg, a title that at once belies its seeming falseness when we consider the value and amount of petroleum heretofore, and now being produced at this point.

The steady and permanent growth of this busy oil centre, the immense deposits of petroleum found here, together with the large extent of oil producing farms, afford a striking example of what the steady perseverance of one energetic operator may accomplish by the development of what was at one time considered valueless territory. In the fall of 1865 there were no operations being conducted in this vicinity, the attention of operators being chiefly confined to the then excited oil centre on Pithole Creek, and the older and more productive localities on Oil Creek.

Several wells had been started upon Upper Cherry Run, but owing to want of confidence in the territory, and the more attractive points outside, combined with the general reaction that marked the close of 1865, these were all abandoned in various stages of completion. Among the wells then abandoned but afterwards made to produce oil in paying quantities, were the Sheridan, Dart, Lockwood, and Cronian wells, the latter having already been drilled to the oil bearing sand, and with a show of black oil. Late in the fall of 1865 Dr. G. Shamburg, Superintendent of the Pittsburgh & Cherry Run Petroleum Company, commenced operations in this vicinity, confident of finding oil in large quantities, notwithstanding the "smiles" of those who at that time found in Pithole aim of their desires. At this time the vicinity of Upper Cherry Run was a wilderness, accessible only by bridle paths through the underbrush, and a bottomless road connecting with the Pithole and Miller Farm Plank Road which was then completed.

Under the efficient operations of Dr. Shamburg the well since known as the "Shamburg Well" was completed and in February 1866 commenced pumping oil at the rate of fifteen barrels daily. The yield steadily increased, at the present time this well is producing about 300 barrels per month. The Shamburg tract which has been one of the most productive tracts in this vicinity, was formerly known as the Sheridan farm, and the first operations upon the same, were made by the Sheridan Oil Company. Over forty-one wells have been drilled upon the Shamburg tract of which three only were ever abandoned as worthless, two of these being so rendered by the tools being lost in the same. The attention of outside parties being directed to this point by the striking of the "Shamburg Well," operations were commenced and the developing of the Shamburg, A. Clark, C. Clark, Tallman, Huidekooper and Atkinson farms followed in rapid succession and the order mentioned.

The Oil Wells.

Among the farms and tracts that have proved to be the most productive, upon which operations are still being conducted, are the Shamburg, Atkinson, Tallman, C. Clark, A. Clark, Huidekooper King, (Chicago tract) Emery Bros. & Colwell, Henderson farm and others.

There are many other small tracts and leases that are classed by themselves, but the above include the more important petroleum producing tracts. The aggregate production of the farms mentioned during May, 1870, amounted to 2,500 barrels daily. This includes the Independent tract, which is sometimes classed with Shamburg proper.

Among the largest and most successful operators in this district are Dr. Shamburg, Dr. Bly, Messrs. Emery Bros. & Colwell, Stewart & Andrews, Bronson, Irwin, Thompson & Spears, Roy & Crouch, and J. G. Benton, nearly all of whom have realized largely from their investments in this vicinity. Mr. J. J. B. Fink, formerly the owner of the Fink well upon the Huidekooper farm, graduated with the coveted "greenback" diploma and is now in the Western States. This well produced largely for more than eighteen months.

Atkinson.

Though now gradually disappearing, the site of the town bearing the above name is distinctly visible, and this was at one time a formidable rival to Shamburg itself. It is named after the owner of the farm, Dr. A. D. Atkinson, of New York. The first developments were made here in July, 1867, when the "Cheney" well was struck and produced from 50 to 75 barrels of oil per day for two months. This was followed by the "Jack Brown Well" which produced up to August, 1868, 70,000 bbls. of oil. This was considered by many as the best well upon Upper Cherry Run territory, though several others have equaled it in production. The Fee wells Nos. 1 and 2, Hidden & Allhouse well on lease 98, Capt. Peck, and Skinner Bros. wells were each good wells and highly remunerative in their prime, to their respective owners. The Atkinson farm is owned by a Stock Company, of which Dr. A. D. Atkinson is President, J. W. Arbona Secretary, and F. E. Hammond, Superintendent. Among the most successful operators on this farm are Messrs. Hidden' Walt. Thompson, Wm. G. Fee, J. N. Brown and H. B. Ring.

The Oil Belt

is distinctly marked in the vicinity of Shamburg, and commencing at a point upon Oil Creek, near the Old Sherman well, extends in a southeasterly direction towards the "National" well. The belt varies from half a mile to nearly a mile in width, and from the "Cheney" well upon the Atkinson farm to the "National" well, and beyond the Independent tract, nearly every rod of ground has been tested, and has in most cases proved productive.

It is estimated that more wells have been drilled in the limits of this territory than in any similar extent of ground in the entire region. Strangers visiting the oil region, and desirious of seeing the busiest portions of the oil field, can at no point obtain so fine a view of oil scenery as from the summit of the hill, near the postoffice, or from the elevated portion of the Clark farm. The view embraces a vast field of operations and besides the natural scenery of hill and valley, extending for miles in either direction, about two hundred producing wells are visible.

The following farms located in this vicinity comprise the more important of the producing tracts, and exhibit the production of each upon the first of the present month:

Tallman Farm, Upper Cherry Run	200
Shamburg Pet. Co's tract do	323
Henderson Farm do	10
Atkinson Farm do	96
Chicago tract	519
C. Clark Farm do	230
A. Clark Farm do	164
Emery Bros. tract, do	293

Besides these there are the Great Republic Oil Co.'s lands, and several smaller tracts upon Upper Cherry Run that yield about 200 bbls. daily in the aggregate, which would make the total production of Shamburg and vicinity about 2,000 bbls. per day. At one time the production was about 3,000 bbls. daily.

Business Houses and Manufacturing Firms.

That some idea may be obtained of the amount of general business transacted at this point, we print below a complete list of principal business firms of the town, which contains a population of about 4,000 inhabitants.

Hardware and Well Tools.

C. H. Duncan, C. H. Duncan & Bro. Hoskins & Weed, M. M. Mount, R. O. Meldrum & Co.

Machine Shops.

R. O. Meldrum & Co., M. M. Mount, Goldthorpe & Cosgrove.

Drygoods and Clothing.

D. Harris & Co., J. Davis & Bro., D. Silberberg, K. Berwald & Co., L. Jacobs, S. Bluestin, Sperling & Solomon, Sigmind Weil.

Groceries and Provisions.

O. W. Fletcher, A. J. Salisbury & Co., S. Brown, W. H. Curry, R. S. McLeary, Geo. Fourl, Stark & Kane, Peter Roripaugh, T. J. Fleming, H. E. Arnold and A. J. Salisbury, Geo. Fingeson, P. Canfield.

Druggists.

A. E. Briscoe, W. R. Dorand and N. S. Burnham.

Jewelers.

Chas. Newborg, Peter Miller, J. H. Wood.

Meat Markets.

J. J. Wheelock & Co., Seavy & Co., T. Temple, Eysinger & Doiler.

Hotels and Proprietors.

Shamburg House, H. M. Mabb.
Prescott House, W. R. DeHaven.
Union House, Curtis & Golden.
Allegheny House, S. Preston.
Beardsley House, H. Potts.
Forest House, M. F. Shiffey.
Lovejoy House, Enos Stall.
Uncle Bills House, W. M. G. Smith.

Livery Stables.

John Dorman, Charles Carson, A. S. McCormick.

Boots and Shoes.

John Maloney, Frink & Baily, Healey & Lyons, W. T. Tailor.

Lumber Yards.

S. J. Sternberg & Co., Towey & Gray, J. Rordpaugh.

Physicians & Surgeons.

F. H. Johnston, office Briscoe's Drug Store; Charles Hill, office opposite Prescott House; W. R. Dorand, Dorand's Drug Store; L. C. Reed, office Dorand's Drug Store; E. J. Hepburn, opposite Forest House; A. S. Richardson, office opposite Forest House, F. J. Johnson, office East Shamburg.

Tobacco & Segars.

A. E. Bruce, H. Lockhart, Abram Fordensky, S. Bluestin, Sperling & Solomon, L. Jacobs, Lewis Pendskops.

Harness Shop

Greenman Smith.

Bakeries.

Turner & Monroe, Fred Gerger.

Billiards and Bowling Rooms.

Jos. Ratell, H. N. Arnold.

Auction Rooms.

A. Marks.

Millinery & Dressmaking.

Mrs. S. Nichols, Mrs. W. Harris, Mrs. Cook & Curtiss.

Restaurants.

A. Pierce, Mike Kirley, U. C. Manley and Jas. Sweeney.

Ice Cream and Confectionery.

E. L. Stillwell, Mrs. Fourl.

Shamburg has in addition to the above mentioned places of business, the following public buildings: One church, two schoolhouses, and a fine Hall belonging to the Good Templars. This hall has lately been enlarged and refitted and will compare favorably with any room in the country of the same class.

The Moral Status

of Shamburg has always been above the average of the generality of oil towns due principally to the prompt punishment that has been meted out to all offenders. The public officers who have assisted to preserve law and order here are C. L. Poor, Justice of the Peace, and

E. H. Sergeant, constable, office opposite Union House. We present the following:

Statement from Docket of C. L. Poor, Justice of the Peace, showing the number and class of criminal actions commenced before him for the year ending June 1st, 1870.

Assault and battery	48
Selling liquor in violation of law	15
Larceny	14
Surety of the Peace	8
False Pretences	5
Public Drunkenness	5
Malicious mischief	3
Embezzlement	3
Forcible entry	2
Resisting an officer	2
Damaging property of livery stable keepers, &c.	2
Vagrancy	2
Desertion	1
Nuisance	1
Keeping Gambling house	1
Robbery	1
Assault and battery with intent to kill	2
Assault and battery with intent to commit rape	1
Civil actions entered during the same period	240

The Pipe Companies

that transport the production of the Shamburg oil field to different points upon the railroad are the Allegheny Transportation Company, which conveys the product to Titusville, Pithole, Miller and Shaffer farms. General office at Miller farm, Pa., and is under the management of Henry Harley, President, New York; W. H. Abbott, Vice President, Titusville; T. W. Larsen, Secretary and Treasurer, Miller Farm; W. Warmcastle, Superintendent, Titusville, Pa. Titusville Pipe Company, whose pipes connect with Pithole, National Wells, Independent tract, Pleasantville and Titusville, also Captain Vandergrifts Pipe line from the C. Clark farm to Pithole.

The Post Office

has lately been removed to a convenient and central location upon the Tallman farm, where under the efficient supervision of A. W.

Merrick, P. M., it has become one of the most convenient and nicely arranged offices in the oil region. It contains 705 boxes, including 44 lock boxes, and about 300 letters are daily mailed and received; 150 letters are registered each quarter, and 1,720 money orders have been issued since it was made a money order office, July 12th last, amounting in the aggregate to $45,000. Post office hours 7 to 8:30, 12 to 1 o'clock Sundays.

Telegraph Offices.

The Western Union Telegraph Company have two offices at this point, and the Atlantic and Pacific Company one. The amount of business transacted over these lines is very great, and related chiefly to the petroleum markets, both local and foreign. The W. U. Co., have an office with the A. T. Company near Tallman farm and also at the Shamburg House. The operators at the offices are, J. F. Irons and Frank Saunders. The office of the P. & A. Telegraph Company is located at East Shamburg and is under the supervision of S. H. Smith.

News Depots.

Messrs. W. Merrick and I. C. Wells, each represent the news and stationery business at this point, the latter also having a branch establishment at Personsville. From a small trade of a dozen papers daily, their trade has increased to thousands per month, and includes nearly every publication sold by the New York and American news companies of New York. 200 copies of the Morning Herald are received daily at this point nearly all of which are taken by regular subscription through the Postoffice and news depots.

Miscellaneous

Three lines of stages connect with all trains on the O. C. & A. R. R., at Miller farm, 1½ miles distant, and one stage makes daily trips to the new field of West Hickory. Many new buildings are being erected, which, with the sidewalks lately constructed between the eastern and western limits of the town, gives to the place an appearance of permanence and thrift that is the exception in the newer settlements of the oil region. A plank road is promised between Shamburg and Titusville, which will shorten the distance considerably, and form one of the most pleasant drives to be found in the vicinity. Want of space forbids mentions of the territory beyond, and included in the Independent tract and Great Republic Oil Co.'s tract, both important points, and belonging properly to Shamburg.

161. The Harmonial Well

Late in the fall of 1867, Abram James, an ardent spiritualist, leased the William Porter farm one mile south of Pleasantville, and commenced drilling amid the scoffs of unbelievers. When down seven hundred feet and past the third sand rock, he became the laughing stock of the oil region, but "Crazy" James kept on drilling. Early in February, 1868, James struck oil and he called his well the Harmonial in honor of the spiritual philosophy. Though a small well, the Harmonial opened up the Pleasantville field and started what promised to be a second Pithole. The following letter about the Harmonial well, written by S. N. Holmes was published in the Titusville *Morning Herald* on February 3, 1868.

This morning, soon after breakfast, news spread like wildfire among the staid denizens of this pleasant village, that a new well had just commenced producing oil. With many others, we repaired to the scene, where, indeed, the so-called "spiritual" well, in the south part of the borough, was astonishing the throng with its production of oil. On inquiry, I learned the oil was first produced from the well about nine o'clock this morning, and near noon, when we saw it, was more than fulfilling the expectations of its immediate friends. It is claimed that this well was spiritually located by a "medium", who, describing the operation, in a printed circular, says: "I was, while passing along in a buggy with a friend, violently influenced and controlled by a power outside of myself. I was forced out of the buggy and over the fence, when I became entirely unconscious. I was then moved for some distance across the lot in which I was, and was stopped upon a spot which was plainly marked out by the control." We were informed by Mr. Farwell, of the firm of Farwell & Potter, who has put down the well, that its depth is eight hundred and thirty-five feet, that the last and fourth sand rock was eighteen feet thick, of which fifteen feet was white sand, and the last three feet was coarse and dark colored. While many of the more enthusiastic place a very high estimate upon its prospective yield, we think it prudent to say, having witnessed the Nettleton wells here in their beginning, (and now producing in their third year) that it will give a daily product of fifty barrels of oil and may be more. With this well as an additional fact there is no longer a doubt that this locality is, and to be in future, permanent producing oil territory. True, it is to be obtained only at a greater depth than is usual elsewhere, but with the perfection of the machinery and skill and experience in drilling, wells can now be bored here with about the same dispatch as a year or two since at the depth of two hundred feet less. So it is being verified, as I predicted two years ago, this locality is ripening into the head center of oildom.

162. THE OIL REGION IN 1868

J. R. G. Hazzard, a special correspondent for the *New York Daily Tribune,* made a tour of the oil region during the summer of 1868. His dispatches give an excellent view of the oil region at that time. His visit to Pleasantville came just at a moment when the oil excitement was at its height. The following dispatch appeared in the Titusville *Morning Herald,* August 8, 1868.

Petroleum Centre, Aug. 1, 1868

Five or six years ago the Venango District was a howling wilderness of crazy speculators and cursing teamsters. The rude farmers who had planted their corn and buckwheat on the steep hillsides season after season, and scraped a scanty living out of the rocky soil, clearing their fields in a cheap, wasteful way by burning the great forest trees, and leaving the trunks to rot on the ground, and the charred stumps to fill half the space over which the plow ought to have passed; who seldom saw a schoolhouse or a newspaper, and never had an idea which they had not inherited from their fathers—these men, intoxicated with the sudden wealth which since 1860 had been spirting out of their lands, and bewildered by the prospect of riches to be had for the digging, had either sold their property at enormous prices and gone to parade their wealth in the cities, or had caught a sudden fever of enterprise and were boring wells and carting barrels with an energy such as none of their race had shown for many a generation back. At any rate the whole face of the sleepy country was changed. The smart Yankee, the speculator, the swindler, the gambler, and the grog-dealer poured into the land and metamorphosed the sluggish inhabitants, or else drove them out. Six weeks was long enough to build a city. New maps were needed almost every fortnight. Outlandish names—Pithole, Oleopolis, Oil City—began to appear in geography. People were so busy gathering the precious grease which wrought these wonderous changes, so eager to be first in the headlong race for new oil lands, that they spared little time for the comforts or even the decencies of life. The "cities" counted their populations by tens of thousands, yet the houses were nothing but shanties, and the streets were filthy sloughs. Millionaires trudged through the noisome mud in cowhide boots and the rudest of clothes, hung around dirty bar rooms, and slept in rickety slab houses. The wagons which conveyed the oil to the flatboats on the Allegheny River or Oil Creek, or, when the water was low, to the more distant railways, could scarcely get through the awful roads, where the mud sometimes covered the axles, and broken wheels and shattered barrels littered the way. There was no time to mend roads; drivers must get along as best they could with the help of hard swearing and a tough whip. It is strange that when it cost the third of the value of a barrel of oil to carry it to the point of shipment, the economy of building railways and laying pipes all through the oil country was not sooner acted upon. The railways came at last, however; but almost before the tracks were laid the great crash came too; business of all kinds was depressed, and the oil trade, owing to various causes, suffered more than almost any other. The collapse of bogus companies, the inevitable reaction after overspeculation, and the decrease in the productiveness of the wells all had their effect. The price of oil fell to such a point that only a few of the best wells could yield a profit, and all over the country the puff of the steam engine and the clang of the drill suddenly ceased.

The revival which has recently taken place in the Venango District—the headquarters now as always for the oil trade—differs materially from the old state of things. The facilities for getting the crude petroleum to market are vastly improved. The race of teamsters is entirely extinct, and the rough frontier character which they gave to the population is no longer perceptible. Railroads run through the valleys of the Allegheny, the Venango, and Oil Creek, completely encircling the producing district, and at convenient points near all the principal oil localities, or "farms," immense iron tanks, like gas receivers, of 5,000, 10,000 or 20,000 barrels capacity are built by companies, and the oil is conveyed to them directly from the wells in iron pipes, laid either on the surface of the ground or in a shallow trench. The pipes are also owned by a company, which has about thirty miles of piping between Petroleum Centre and Titusville, and controls nearly the entire oil business of that rich locality, buying the crude petroleum at the wells and selling it from tanks at the point of shipment. It is understood that they are about to effect a sale of their entire business to the consolidated railways, the Oil Creek and Allegheny River, the Allegheny Valley, and others which surround the district. The cost of putting down the pipe is about $3,000 a mile. Steam pumps regulate the discharge into the tanks, and thence when wanted into barrels or car tanks. During the comparative inactivity of the past year or two, the towns which did not die outright have had an opportunity to brush up a little and improve their appearance. Most of them are ugly enough still, but a little ornament is perceptible here and there, the streets are tolerable, and generally you will find a plank side walk. The land speculators have gone out of the older oil regions and are only beginning to appear in the new ones. You hear no more of the wonderful buying and selling of "leases" and "refusals" by which so many fortunes were made. You hear no more of the extraordinary discoveries of flowing wells, by which men have become rich in a single day. The renewed activity is a steady legitimate business profitable at the present prices, and usually conducted by lessees, who pay a royalty of say one quarter the production. Labor is not dearer than in any other parts of the country. The cost of living is not extraordinary, and the expense of sinking wells is probably not more than half as great as it used to be. A well of 800 feet with derrick, engine, and all necessary tools, can be bored and put in working order for about $1,000. Oil is worth at the wells $5 a barrel, and about $3 of this is clear profit to the producer.

I entered the oil region of the Atlantic and Great Western Railway through Meadville and Franklin, where the earliest discoveries were made. Scattered evidences of the old fever meet the eye all along the road which follows the valley of the Venango and the Allegheny. Derricks black with the weather, were dropping to pieces every here and there in the river bottom, and broken windlasses, rotten tanks, and now and then the battered remnants of an engine were strewn over the ground. As we approached Franklin a few wells were found in operation, pumping some four or five barrels a day, and from Franklin down the river to Emlenton there is a succession of these small wells, the aggregate yield of which is about 1,000 barrels a day. None of them are flowing wells; indeed pumping now-a-days is almost universal. I spent a few hours at Reno, three or four miles beyond Franklin. What an example that place is of the insanity of former years! There never was an extraordinary flow of oil just there, but oil brought the town into existence, and at one time Reno even published a newspaper, and a good one too. It is now nothing but a dozen or so of shabby-genteel houses ranged on either side of the road, a shop, a hotel which looks just like a New York tenement house but is vastly better than it looks, an office or so, the railway station—there you have the whole. The failure of Culver and Penn's famous Venango Bank was the death blow to this town, and though there are people who look for the resurrection of Reno I have seen no ground for their faith. Messrs. Culver and Penn have organized the Reno Company for the purpose of operating some wells on their property here, and hope partially to retrieve their property here, and have five or six pumps at work on old wells which were abandoned some time ago when oil was so cheap that it would not pay to work them, and they are getting two or three barrels a day out of each, with the hope of still developing the production. On leased ground there would be no profit to the worker in a two or three barrel well; but as the Reno Company have no royalty to pay they may find their advantage in these moderate operations. Close to their property is the Hasson well, which now yields about 100 barrels a day, and at one time gave four hundred. It is a flowing well, and has been in operation eight or nine months. The Lackawana Company has several wells here, yielding moderately but one of them has given out since the Hasson well was sunk. You get at these various wells by a rough road, partly corduroy, which ascends a wild glen—a stony, broken track, full of deep ruts and mud-holes, reminding you of the extemporized roads which our armies used to make in the field. A few teams are employed to bring the oil down to Reno Station, but most of it is conveyed directly in pipes to Oil City, a mile and a half or two miles distant over the hills. The wells, as you know, give an abundance of gas, and this is used to generate for the pumping engines, some companies burning no other fuel whatever, others using a little coal. The pipe which brings the gas from the well passes directly into the furnace and is there perforated with a row of large holes, from which the flames issue in fierce jets.

Down again after a climb over these wooded hills, the home of countless rattlesnakes and copperheads, I took the cars once more, and in a few minutes was at Oil City. It was night when I arrived, and the great fire which laid a third of it in ashes had burned itself out only a few hours before. The railway passes through the centre of the ruined district, and the piles of blazing timbers all around us lighted up the sky and towering hills with a fitful glare, and threw out the great receiving tanks and long rows of black scaffolding into a strange relief. The locomotive crept through the embers cautiously, stopping every few rods, while some ran ahead to see if the way was safe, for the ties had been on fire, and the rails even were somewhat warped. It is a wonder that the destruction was not greater, for right here in the midst of shanties and platforms, dripping with oil, there is tankage for over 13,500 gallons, and the houses are light wooden buildings which burn like tinder. Yet only one tank burst, and that was nearly empty. In fact it is only when these iron receivers are empty that there is much danger, and they are therefore usually kept full of either oil or water, or both. Fire then cannot heat the iron enough to open the joints. As an additional precaution the roofs are sometimes covered with turf, and I visited one receiver at Oil City entirely under ground. A respectable hotel, a good bed, and a pleasant landlord, were comforts for which I was hardly prepared, nor had I expected to see such a pleasant looking street of dwelling houses as that which runs along the summit of Cottage Hill, the fashionable quarter of the town. But Oil City had arrived at maturity, and has more time for the amenities of life than it had in the busy years when it was getting its growth. Now it grows no more. Built on both sides of Oil Creek at the point where that famous stream joins the Allegheny river, it is the great shipping point for an extensive producing district, though it has no important wells of its own.

Here in the seasons of high water flat boats transfer their loads, brought from the upper part of the creek and river, to larger boats bound for Pittsburgh, while at all seasons thousands of barrels are sent oft by the Allegheny Valley Railroad to Pittsburgh, and by the Atlantic and Great Western Road, to New York, Buffalo, Cleveland, and other points. The greater part of the freight of course goes by rail. The river is a favorite route, but it is frozen in winter and nearly dry in summer. "Oh, there is nothing like a good river," said a prominent shipper, "only just when you want it the darned thing won't go." Oil City, therefore, has a substantial basis of prosperity, which will enable it to hold its own as long as the Venango District continues to yield. It has twice as much tankage as any other point, the aggregate capacity of the various receivers on the 1st of August being 317,410 barrels, at 43 gallons each. Next comes Tidioute, with 185,000 barrels, then the Miller farm, on Oil Creek, six miles from Titusville, 97,000 and Boyd Farm at Petroleum Centre, with 57,000. The total tankage of the district is 1,064,500. On the 1st of April it was 989,000; on the 1st of January 764,000; and on the 1st of July last year, 500,000. These figures will give you some idea of the recent development of the trade. The quantity of oil now in tank is about 215,000 barrels, and the whole amount of stock on hand about 240,000.

If I say that Oil City is not now the horrible mudhole that it used to be, and that some neat houses have grown up at one end of it, pray don't understand me to mean that it is by any means pretty or pleasant. The creek bottom in which it stands is filled with a frightful collection of shanties, all reeking and stained with smoke and oil; the old houses are black and the newest dingy; the streets are muddy, with a horrible ooze; the sidewalks are spotted with oil puddles; and there is a pervading odor of smoky lamps, and through the middle of the place, crossed by several bridges, runs the greasy creek, its waters shining in the sun with all the prismatic colors, and pools of black slime and filth gathering in the eddies of the piers. Yet above this nasty town the glorious hills, with the little plank-houses propped against their sides, rise so beautifully and imposing that the ugliness of the prospect is half redeemed.

The production of oil in the immediate neighborhood of Oil City does not exceed 250 barrels a day, and as we go up the Creek we find no very valuable farms till we reach Rouseville, a distance of four miles. The bottom lands, however, are a wilderness of derricks, which remind you of nothing so much as of shipping crowded into some great harbor. Perhaps not one in ten of the wells are in operation. The others were abandoned long ago as failures, or the supply was exhausted, and now the frames are black with decay, the timbers are dropping apart, the sheds have tumbled in, and fragments of rope dangle from the pulleys at the top, like the remains of some rotten old gallows. There are no very remarkable wells at Rouseville, but there is a steady aggregate production of 1,100 barrels a day. Three miles further up is the Story Farm, which, I understand, has been very successful, in a pecuniary sense, though a great deal of money was sunk in the attempt to make it so in 1861 and 1862. It is about 500 acres in extent, is owned by a company in fee, and not more than one-fifth of its territory has been developed. On this portion there are about 30 wells in operation, the largest of them, the Blocker well, yielding 160 barrels a day, and all the others together about 300 or 350. Two or three new ones are boring.

Petroleum Centre, a mile above it, is the nearest approach to an old fashioned oil town, with its characteristic population and its slimy roads, that I have yet seen. Two dirty streets, lined with shanties, among which are shops with a decent stock of goods, countless groggeries, where all day long you hear the scrape of the festive fiddle and the slapping of cards on the whiskey-stained tables, and now and then the strumming of a piano whose legs, carefully bandaged with newspapers as a protection against muddy boots, have a comical appearance of gout, and a few smithies and machine-shops—these make up the town; while all around, as far as the eye can reach, up to the summit of the steep hills which line both sides of the Creek, is a maze of derricks, tanks, and puffing engines. All day it has rained hard at frequent intervals, and the weather, of course, adds nothing to the charms of the place. Rough looking men with slouched hats are constantly galloping about on horseback. Heavily-laden mule teams come thumping and crashing in from the more remote wells. It is a town almost exclusively of men. "Fashionable Millinery" purports to be sold in some of the shops; but it is a mystery who buys it, for a petticoat is a phenomenon. Like most of the oil towns however of the present day, Petroleum Centre has respectable taverns, where the landlords are intelligent and polite. The daily production of oil at this place is 1,500 barrels. The Wood Farm, on the crest of the hill west of the creek, is the most valuable property, yielding about 500 barrels, from some thirty wells, several of which have been in operation as much as a year. Close by it is the celebrated Benninghoff property, out of which that wretched old man, whose robbery created such a sensation a few months ago, got his million or so of dollars which he kept locked up in his house. The recent capture of most of the thieves who carried off a third of his treasure, tying and gagging the whole family while they ransacked the premises, has revived the interest in the affair, and everybody has some story to tell of how the robbers swindled one another, and spent the money almost as fast as Johnny Steele wasted the fortune he got from the McClintock Farm near Oil City, and how everyone of them now wants to turn State's evidence, except one who has not been caught. At one time the production of the Benninghoff Farm greatly declined; but some good veins have been struck this season, and the yield now is about 450 barrels per day.

All the way up from Petroleum Centre to Titusville, ten miles, the valley abounds with wells pumping from 10 to 50 barrels. New ones are bored faster than the old ones give out; but the production of the old fields is steadily declining, and the average of each well is also growing smaller and smaller. It requires a great deal more labor and more wells to give a thousand barrels of oil now than it did a year ago; but as new fields are constantly discovered the aggregate yield of the oil district is increasing. Last November the daily yield of the whole Venango region was 9,800 barrels. In January it was 11,000; in April it had fallen to 8,900; by the first of June it arose again to 10,000; and today it is reported by Mr. Bakely of the Titusville *Herald,* whose carfull statistics have a high reputation in the district at 11,300. So you see the revival in the oil trade of which we have heard so much during the last three months is a revival rather of activity and of prices than of productiveness. There are fewer signal failures than there used to be; but there are no more of the great thousand-barrel flowing wells, and the average yield of each one grows smaller and smaller. This, of course, is perfectly natural. The accumulations of gas, imprisoned with the oil, which drove the liquid through the crevices into the well whenever a vent was found, have been escaping all these years, through a million wells. Hundreds of wells, too, have been flooded with water from abandoned shafts, and the oil, it is supposed, has been driven back from whole districts. You know that when a well is bored, water is always struck before the oil, and unless it is kept out by constant pumping or better still, by a properly arranged casing, it will swamp everything. When a well is given up the pumping ceases, and the casing, if there is any, is withdrawn. The result is sometimes the ruin of the whole neighborhood. They tell stories of men paying $50,000 for a well, and the next day being "drowned out" by an accident to a neighbor's casing. Then, again, in favorite localities, the wells are much too close together, and undoutbedly draw from each other. Owners are beginning to exact from their lessees some conditions designed to correct these evils; but there is still a lamentable want of system, and the valuable resources of this wonderful region are being rapidly wasted.

It used to be thought that no oil existed except in the bottom lands along the creeks and rivers; but since those localities have become exhausted or drowned out, people have been boring on the hills, and even on their summits, and it is now understood that the oil bearing stratum has no relation to the topography of the surface; if you reach the third sandstone it makes no difference whether you bore in a hill or in a valley, only if you go into the valley you reach the rock sooner. So the activity along Oil Creek now is principally on the hills; and the wells, of course, are correspondingly deeper than they used to be in old times. Those on the Wood Farm are 900 feet deep. The oil belt is supposed to stretch in a north-east and south-west direction, and so far as present developments enables us to judge may be said to extend from Titusville to Emlenton. But there are continual breaks and irregularities, and though your land might be right in the belt, you must not be sure of finding oil. Science has given us rules, but they have proved more guess work. You may learn how to sink our wells with a reasonable assurance of success, but we have not learned yet.

Meanwhile oil-finders are roaming over the country, and selecting sites for the credulous, for a consideration—diviners with their rod of witchhazel, and smellers who put their noses to the ground and pretend to scent the petroleum away down under the third sandstone. I heard of a poor man who was persuaded to put down twelve wells by one of those charlatans, and he never got a drop of oil from any of them. It is a curious fact, however, that Pleasantville, where all the excitement of the oil region now centers, the first good well was discovered by a spiritualist who professes to have been guided by the spirits. Whether he was or not, nobody seems to care, but the whole country is rushing to the spot, and there will be a city there before the end of next week. The success of the borings at Pleasantville has not been so splendid as at some other places, but there has been *absolutely no failure;* every well has produced, and all but two have yielded handsomely. I shall describe this region to you hereafter. People talk of nothing else, and every conveyance going in that direction carries crowds of eager operators.

163. THE OIL REGION IN 1868

This is a continuation of J. R. G. Hazzard's dispatches to the *New York Daily Tribune.* This dispatch appeared in the Titusville *Morning Herald,* August 11, 1868.

Titusville, Aug. 3, 1868.

In the midst of a heavy rain storm, I crossed Oil Creek at Petroleum Centre, and got aboard an oil train bound for Titusville. Our load consisted of a long string of platform cars, each carrying two forty-barrel petroleum tanks, and at the end of the train was one small caboose into which the passengers (including a few women) were packed exactly as they are in New York horse cars of a rainy morning. A few found seats on chests and benches, and the rest held on by rods fastened to the roof. We had to choose between rain and suffocation, so we kept the doors open and took the rain. We crawled along at a snail's pace, for the engine was evidently overtaxed. Everywhere the scene was the same: the creek bottom filled with abandoned wells, the derricks lifting their black timbers like one of those dark, mysterious forests which Gustave Dore loves to draw, land and water stained with the thick, green oil, the pumps hard at work upon the hills, and at every mile or so a sort of station, with a huge red receiving tank, and a black dripping platform where the cars take in their freight. The piping system has made a great change in the manner of shipping oil, and indeed in the whole character of the trade. In old times every producer must have a large capital invested in barrels and the labor of many hands was needed to fill and empty, to load and unload them. A load for a car then was 55 barrels. But when this piping and pumping company came into operation, the railroad people put wooden tanks upon their cars, so that each car carries the contents of 80 barrels. The oil is pumped into the cars at the point of shipment, and pumped out again at the place of destination, the pipes being so arranged that a whole train can be filled or emptied at once. The oil need not see a barrel until it has passed through the refinery and is ready for the retail dealer. There are two lines of railway running north from Oil City—one through Titusville to Corry, on the Atlantic and Great Western, and Philadelphia and Erie Roads, and the other a few miles to the east, connecting with the Philadelphia and Erie at Irvington. The second road traverses a cemetery of dead oil town's; places which have been prosperous, if not very comely, but whose glory has departed, and whose houses are fast vanishing off the face of the earth. On the Allegheny, for instance, at the mouth of Pithole Creek is Oleopolis, and a few miles up the creek, on a branch railroad, is Pithole City. They were both great in their day, but their wells have given out, the speculators have left them, and many of their best buildings are being taken to pieces and removed to other localities. They do some business yet, however, being shipping points of the second or third magnitude. But nobody seems to anticipate any future for them except ultimate extinction. Further up the Irvington road, some 25 miles above the mouth of Pithole Creek is a more important place, Tidioute, in the immediate neighborhood of which there is a daily yield of 1,500 barrels, though it is rather on the decline than on the increase as a producing region. As a shipping point, however, it ranks next to Oil City, having tankage for 185,000 barrels.

To leave these greasy places and ride into Titusville is an expressible relief, for Titusville, though an oil city, getting its wealth and owing even its existence to petroleum, is so far off on the verge of the flowing district that it spares some time to make itself decent, and really look as if it were intended to last. Factories, cooper shops, machine shops, law offices, a daily newspaper, churches of all kinds, a population of 10,000, good plank sidewalks, a "theater," and a number of imposing private houses, the only fault of which is that they are too ridiculously good for their neighborhood—such is the Titusville of today. It has some valuable wells on Church Run, just at the edge of the city (for you must know it *is* a city), and produces about 450 barrels of oil a day, but it makes money rather out of the surrounding country than from its own resources, and is now the center of the richest and most interesting portion of the oil regions. Here speculators and operators congregate; here the statistics and news of the whole Venango region are collected and discussed; here shippers transact a great part of their business, and the unfortunate money-getters, who make their life among the wells, run hither every day or so and refresh themselves with a glimpse at civilization. During the depression in the business Titusville suffered like all the other oil towns, but the discoveries at Pleasantville and Shamburg this spring have given it a new life; real estate has doubled in value within a few months, and every afternoon the taverns and street corners are lively with excited crowds, discussing products and prices with a noise and eagerness which remind me of a busy day in Wall street. Six or seven years ago Titusville contained nothing but a tavern, a blacksmith's shop, and two or three mean little houses, and nobody dreamed it could ever be anything better than it was then. Its people were simple, unsophisticated farmers, who knew very little about farming and still less about anything else. And this reminds me of a story illustrating the simplicity which still rules in some of the outlying districts. One Ned Brown keeps a livery stable in Titusville, and when the village came into its fortune and began to call itself a city, it occurred to Mr. Brown that what Titusville wanted most of anything in the world was a nice good hearse. He bought one—the first that Titusville had ever seen—a splendid affair with trappings all complete and eight big plumes of black and white nodding over the roof. In due time an oil prince died in Tidioute, and Ned Brown's hearse was driven over for the funeral. As it passed along the road a man at work in a field dropped his hoe, and shouted, "Helloh!" Ned Brown pulled up his horses. "*Where are you going to show?*" "What's that?" said Ned. "Where are you going? Where's your show to be?"

On being informed that the show was to be at Tidioute, the honest farmer "guessed he would hitch up his team and drive over"; and I hope the performance satisfied his expectations.

Ned Brown, and every other man who owns a horse in Titusville, can reap a golden harvest now; for all day long and nearly all night, on Sunday as on week day, the whole city rushes to Pleasantville and Shamburg, and back again. At least twenty omnibusses, holding from twelve to twenty passengers, make the trip every day, crowded to their utmost capacity; and the road is as lively as the Central Park on a summer Saturday afternoon. *All* the excitement in the oil regions is about these two places. In others, money is being made, but the excitement is nowhere but here—indeed, I may say it is nowhere but at Pleasantville. Four months ago, this was merely a little country cross-roads, high up on the hills to the Southeast of Titusville, about three miles from Oil Creek, and six from Titusville. A few wells had been sunk in the neighborhood (what township indeed in Western Pennsylvania is without them?) but they proved of little value, and Pleasantville was supposed to be outside the "belt." The developments which have within a few months given it so wide a fame, were made by Mr. Abraham James, a well-known spiritual medium, who claims to have a peculiar power of detecting subterranean currents. Some years ago he declared that the spirits had revealed to him the existence of oil just on the outskirts of Chicago. A company of believers was formed to bore for it, and at the depth of 715 feet they struck —not oil, but water. The result was rather a disappointment, of course, in a pecuniary point of view; but to make up for that it gives Chicago one of the most remarkable artesian wells in the country, which yielded 200,000 gallons of water a day, until the spirits unwisely persuaded the company to sink another well, which tapped the same reservoir and took off half the flow. They don't use water much in Chicago, and Lake Michigan will probably give them all they need for several years to come, so the great well cannot be called a success. But with Mr. James's latest vaticinations there is certainly no fault to be found. He lives at Pleasantville, in a neat, white, old-fashioned farm house, with a broad green sward before the gate—a pretty place, such as it is rare to see in these dirty regions. "It is about two years," he told me, "since I made this discovery. I was driving through the village in a buggy with a friend, when suddenly, as I came to that field yonder, a irresistable impulse caused me to stop. Then a power outside myself seemed to lift me up, as if in its arms, and take me out of the wagon, and carry me to the fence. I know that I got over the fence, under the influence of this uncontrollable power, but what happened after that I cannot say. They tell me, however, that while I was in a trance state I ran violently about the field (others say that he was seen revolving like a wheel, heels over head, but possibly this is an exaggeration), and when I regained consciousness I found myself on the spot where the well now is. I never was surer of anything in my life than of the existance of oil in that place, but I had no means to sink a well, and it was more than a year before I could induce anybody to help me. We got to work at last, however, and on the 1st of February this year, we struck oil."

Such is Mr. James's story. Nobody seems to be in the slightest degree impressed by it, or, indeed, to think about it in anyway. The business is all a lottery, say the operators, and if you get a prize it is only your luck. Don't you suppose a hundred other men have been just as certain as Mr. James that oil would be found in a particular spot, and have tried it and failed? We hear of the ten big strikes, but we don't hear of the thousand failures. The Harmonial Well No. 1, as Mr. James's venture was called, produced at first 45 or 50 barrels a day, rose after a while to 100, and has now fallen to 80 or 90. Of course he secured all the land he could in the neighborhood, and put down his drills again. His second well (Harmonial No. 2) yields 100 barrels a day, and a third, not yet finished, gives 60 or 70. He is sinking ten more, and he has leased 22 to other persons. Over a space of a mile or more the derricks are reared as thick as masts in a harbor. There are now some fifteen wells in operation just about Pleasantville village, and as many more near by, and between 100 and 150 are now drilling. The most productive is the Grant Well, No. 1, only a few rods from the first Harmonial, the yield of which is estimated all the way from 150 to 200 barrels a day. It has been pumping four weeks. On the opposite side of the road is the Beam Well, No. 1, remarkable for its tremendous flow of gas, the roar of which, as it escapes from a tube run up 20 feet into the air, is like the blowing of a steam engine. They light it sometimes at night, and then illumes all the surrounding fields. This is the only surplus gas that escapes; the rest is used in the engine rooms, and heats three or four different boilers. The flow of oil is not extraordinary, being only 25 or 30 barrels a day. The most remarkable thing about the Pleasantville district, however, is not the productiveness of any particular well, but the fact that in no instance yet has the drill pierced the third sandstone without striking oil—a fact entirely without precedent in the history of the oil excitement. Two of the borings have produced comparatively little—that is to say 5 or 10 barrels a day; but even at that rate there is a profit in them if they only last as long as the average. Of course, there must soon be a turn of this prosperous tide, and at the present reckless rate of boring it may come any day.

The store of petroleum is not inexhaustible, and the flow of all wells gradually falls off, and generally ceases entirely in the course of from nine to twelve months, though there are remarkable exceptions to this rule—witness a well near Franklin which has been flowing seven years and still gives 2½ barrels a day. The Pleasantville wells moreover are crowded so close together that it seems almost inevitable they should interfere with one another, and some day the cessation of one may drown out half a dozen others or some lucky fellow may drain all his neighbors. But meanwhile the crowd pours headlong in; land has risen in price within four weeks from $200 to $2,500 an acre; owners are parcelling out their fields in quarter acre leases; and the excitement approaches close to that of former years when Pithole and Oleopolis were in their glory. At the one little tavern there is never a bed to be had, and charge 50 cents a night to lay you out on the floor. Every house is per force a boarding house and many of the workmen can find no shelter but a pile of shavings in some shed or unfinished building. The neat little white houses which composed the place before the rush set in this summer were scattered along the roads at wide intervals, in the pretty New England style, and now great rows of pasteboard shanties and large frame tenements are strung between them, making a curious mixture of new and old. The people from Pithole and other dead towns are tearing down their houses and rushing off with them to Pleasantville. I left a hotel and theatre on the road from Pithole, and many other buildings were coming, some of them having been moved once or twice before. It would be more convenient to build the houses on wheels, as I believe folks do in Chicago.

When all the world set out for Pleasantville, the first thing the villagers did was to put up a calaboose. They tell me it never had but one prisoner, and the town has been as orderly ever since as a Quaker meeting. I doubt whether fear of the new jail has as much to do with this millennial state of things as the facts that the old residents have thus far succeeded in keeping groggeries and gambling shops away, and that new comers are too busy digging to amuse themselves with fights. There are a few loafers in the population, and a few speculators. Leasers are not taken as they used to be, to be sold again at a premium, and the days are passed when a man could travel through the oil regions with no more capital than a few blank agreements and a handful of revenue stamps, and make a fortune buying and selling "refusals" of land. Lessees are now legitimate operators, and the population of places such as Pleasantville and Shamburg is composed of them and their employees, with shop-keepers, and visitors interested in distant oil companies.

On the 1st of August the Pleasantville wells were discharging 1,250 barrels a day, while Shamburg (better known perhaps as Cherry Run), three miles distant, yielded 2,250. Yet people are leaving Shamburg in considerable numbers and going over to Pleasantville, taking their houses with them. This is partly because boring at the latter place is looked upon as certain to succeed, and the wealth of the underground·store is not half developed, and partly, I suppose, for the reason that we all run after a crowd. At the present moment Shamburg is certainly the richest part of the Venango district, and has also the most productive single wells. The Spear well pumps 300 barrels a day, and I have heard of no other anywhere which does so much. The Fee Well, No. 2, at the same place, is set down at 200 barrels, having been much improved by the repeated use of torpedoes, by which the horizontal oil veins are opened whenever they become clogged with sediment. There are four or five wells yielding from 100 to 200 barrels, and the whole number in operation is about forty. But very lately several small ones have been drained dry by their larger neighbors, and that has inspired a feeling of distrust. Shamburg is even a newer looking place than Pleasantville, because it had less to start with, but they both began to be known as oil towns about the same time. Being well situated on a high plateau, which commands an extensive view of a derrick-infested country, it has some attractions to set off against the repulsive aspect of its 150 pasteboard shanties, its one decent tavern, its six or eight whiskey shops, and its two "free and easy" concert saloons. In a month half these houses may be carted away, and how can you expect people to build a nice town when it may be dead before morning?

I have now described all the principal points in the Venango district, which yields at least five-sixths of all the oil produced in the United States; and you will probably agree with me in thinking the business, precarious as it must be, on a much better basis than it has ever been before. The flow of oil is weaker than it used to be, and every locality soon exhausted; but new fields are discovered every day, and so the aggregate yield is slightly on the increase—as much so, perhaps as the increase in demand makes desirable. The cost of getting the oil from the wells to market have been greatly reduced, and we shall probably never again see the time when it was allowed to run in the river because it would not pay the cost of transportation.

But the system of boring is reckless and mischievous, and will soon entail disaster, and science has thus far failed to give us any practical assistance in the art of economically collecting the treasure which flows a thousand feet beneath us.

164. The Oil "Corner" of 1869

The earliest and most famous oil "corner" originated in Pittsburgh almost simultaneously with Gould and Fisk's attempt to "corner" the gold supply in 1869. Who organized the oil "corner," the purpose, and the results were reported in *The Pittsburgh Ledger,* and reprinted in the Titusville *Morning Herald,* October 4, 1871.

The heavy suit instituted last week by David Hostetter against Messrs. Warden, Frew and Lockhart, of the firm of Warden, Frew & Co., has revived the recollection of the famous "oil corner" of 1869, the suit to recover some four hundred and forty thousands dollars, being probably the heaviest amount ever sued for in this country.

"Corners" have been gotten up in gold and stocks in New York, and in grain in Chicago, but this was the first great "corner" got up in this city, and the disastrous manner in which it ended has prevented any further efforts in this line since. This was a "corner in oil," and was projected on a grand scale.

The prime movers in this scheme were Lockhart & Frew, Warden, Frew & Co., Alex. Byers, Joseph Fleming, David Hostetter, and the Allegheny Valley railway company. There were, of course, others in the ring, but these were the parties who engineered the movement. In 1869 there were many contracts out for oil to be delivered in the latter part of the year. At what time the ring was formed is not exactly known except to those who were in it; they had bought up many contracts before it was discovered by unwary oil dealers that a movement was on foot to "bull" the market. The scheme was to get possession of all the oil in the market, raise the price to their own figures, and then sell it to those who had contracts to fill at the close of the year.

Things went on swimmingly with them for a long time. They purchased contract after contract, and as they fell due, the oil was delivered. The custom among dealers is that, when a contract is due, the party engaging to deliver the oil pays the difference at whatever the market may be at the time. But the "ring" refused to accept anything but the oil; even if twenty cents a gallon more than the market price was offered it was promptly refused. Oil they must and would have, and parties having contracts due were compelled to buy from those who had no contracts to deliver oil, or whose contracts would not fall due till later in the year.

To make matters more favorable for the "ring" the river fell to a very low stage, and so remained. The Allegheny Valley Railway Company, being in the combination, was always ready with the excuse that they had no cars to bring oil from the creek to this city. As October and November deliveries fell due, oil became scarcer, and the "bears," or those caught "short," were fearfully gored by the "bulls," who composed the ring. So formidable had the operations of this combination become toward the close of 1869, that it materially affected the money market, and seriously interferred with other branches of business, the Exchange Bank carrying hundreds of thousands of dollars for the "ring."

Matters were approaching a crisis, and things looked exceedingly gloomy for the large number of operators who were caught with contracts to deliver oil at the close of the year. The conditions to which the "ring" had reduced the market had bankrupted a great many, and seemed likely to serve others the same way. But, providentially, for those who still held out and had contracts to deliver, there was a rise in the Allegheny river in December. Oil had accumulated in large quantities above, and the high price here caused heavy shipments. It came down the river as though it was the last chance those above would have to sell. This made trouble for the "ring" as it afforded the "shorts" an opportunity to fill their contracts. In order to save themselves the "bulls" were obliged to enter the market and buy oil, in order, if possible, to exhaust the supply and keep up the prices till the 31st of December. In this way the "ring" purchased and had on hand immense quantities of oil. But it was of no avail, for the river remained at a good stage, and, notwithstanding the herculean efforts of the combination all who had contracts for the end of the year were enabled to deliver at eighteen cents a gallon.

On the thirty-first day of December, 1869, crude oil was worth eighteen cents per gallon, and at that price the contracts were all closed. On the first day of January, 1870, crude oil was selling at from twelve to twelve and a half cents per gallon. This left the combination in possession of over half a million barrels of oil that had cost them an average of about fifteen cents a gallon. The "bulls" were disastrously defeated. With such an accumulation of oil on hand there was but poor prospects for a rise in price, and the men who had invested their money in getting up the "corner" had to make the best of a bad bargain, for they had over-reached themselves in a fearful manner. The operations of the "ring" were exposed and discussed at the time, and was for weeks the most exciting topic in the city.

The suit now brought by Dr. Hostetter against Warden, Frew & Co. is one of the results of this combination. Dr. Hostetter now claims that he advanced $225,000 to the firm, to be disposed of according to his order, he says they did so, and that the forty thousand barrels bought on his account by the firm were shipped to foreign ports and disposed of, and some four hundred and forty thousand dollars paid to Warden, Frew & Co., or their agents, by the consignees of the oil in October, 1869. This, it will be seen, was before the combination was broken up. This is the money he now sues to recover.

The gentlemen engaged in getting up this famous "oil corner" have always been considered safe in business transactions, and occupied prominent positions in a religious and social point of view. Many think however that this thing of "getting up corners" in any branch of trade is neither more nor less than gambling, but without the redeeming feature of letting your antagonist know what game you are playing, or giving him any chance whatever. It is most emphatically "putting up a job" on him.

165. COST OF DRILLING OIL WELLS IN 1870

The following account, relating to the expense involved in drilling an oil well, appeared in the Titusville *Morning Herald,* December 8, 1870.

The expense of putting down wells varies a little with the locality, and is generally in proportion to the depth, the pebble or oil bearing rock, being found all the way from six hundred feet to eleven hundred feet from the surface. Most wells are put down now-a-days with large casing, six to six and a half inches diameter. This is for the purpose of shutting off the water previous to drilling in the oil rock. The use of this casing entails an expense of from $1,000 to $1,200. In place of the old driving pipe which used to be driven to the rock, a conductor as it is termed, made of four pieces of two-inch plank, prevents the caving in of the gravel. A six or six and a half inch hole is then drilled, until it reaches below the water courses, after this the casing with seed bag, water packers, or cups attached, is let down until the water is cut off. This effectually prevents the fresh water reaching the oil-bearing crevices. The drilling now proceeds with a reduced bore of about five and a half to six inches in diameter, to the required depth, after which the tubing can be immediately let down, and pumping commenced at once. Salt water usually accompanies the oil, but unfortunately the oil does not always accompany the salt water. Small yielding wells generally give off gas sufficient to supply half the requisite fuel for working, while large producing wells furnish enough gas to run, not merely the engine which pumps them, but several others besides. Great economy is found in the use of one large boiler, to supply steam to several wells at once. The power of the engines vary from ten to twelve horse-power each. The expenses of rig and machinery are as follows:

Rig	$500	to	$600
Driving Pipe	200	to	300
Engine	600	to	1,000
Casing, 6 inch	500	to	1,000
Tubing	350	to	400
Sucker Rods	100	to	125
Tools and Sundries	400	to	500
Cost of Drilling	2,200	to	2,000
Fuel	250	to	300
Total	$4,100	to	$6,225

These figures cover the average cost of shallow and deep wells without tankage. In some cases, however, they are put down cheaper, and in others where accidents occur, such as caving in, tools sticking, etc., they cost more money.

166. The Titusville Oil Exchange

Various attempts were made prior to 1871 to organize an oil exchange in the oil region where buyers and sellers could meet, ascertain with some accuracy the amount of oil being produced and sold, and transact their business in accordance with certain rules and regulations, but without much success. In January, 1871, however, one hundred and sixteen dealers, producers, refiners, and brokers along Oil Creek agreed to form an association to be known as the Titusville Oil Exchange. During the next two months they perfected the organization, secured new members, drafted rules and regulations, and selected and beautifully furnished rooms in the Parshall House. On March 13 the members met for the first time in their new rooms and commenced business. The following history of the exchange appeared in the *Titusville Morning Herald,* January 15, 1881.

Twenty-one years ago, oil exchanges were as undreamed of as oil speculation was unborn, but from the time that the Drake Well was struck, August, 1859, till the Church Run excitement had risen to large proportions, speculation in petroleum sprang up and rapidly increased with the growth of oil development. Titusville was the centre of this speculation. It was here that the dealers and brokers lived, and what few might have resided elsewhere kept their agents constantly in Titusville. At first these people formed little personal exchanges of their own, gathering in knots around the telegraph offices and at various other points. But in 1868, '69, '70, the headquarters of the business had gravitated to the American Hotel, where the Atlantic & Pacific Telegraph Co. then had their office. This then famous hotel was kept by the well-known and popular Major Mills (father-in-law of John D. Archbold, Esq.), and stood upon the identical spot where the new exchange is now built. Crowds daily thronged this place, while on the sidewalks surrounding the building the votaries of speculation sometimes jostled each other of an evening in vast numbers.

In view of the fact that Major Mills had permitted his principal office to be thus thronged, the oil men, with characteristic generosity, and as a partial recognition of the Major's accommodating spirit, as well as of his great popularity among them, got up a subscription list, and quickly raised $250, with which amount an elegant gold watch and chain was purchased and presented to Mr. Mills. Mr. M. E. Bassett made the presentation speech on the occasion, which was a complete surprise to the Major, who was completely overcome with the good feeling displayed.

In those days, as well as now, there were giants in the trade. Among these were W. H. Abbott and Henry Harley, who at that time owned the only pipe line in the Oil Region, and were said to exercise great influence over the Oil Creek Road, then the only railway running through the Oil Country. Other names may also be recalled. Some of these were: L. H. Smith, Wm. B. Byers, J. J. Vandergrift, Adnah Neyhard, A. P. Bennett, G. B. Easterberg, Dr. Egbert, and we might add John D. Archbold, who although quite young, and in the employ of Wm. H. Abbott, for whom he was doing business, showed such ability that he was counted among the lions of the trade. Sometimes Dr. Egbert would come up the creek and astonish the trade by buying or selling forty or fifty thousand barrels, which at that time, was considered an enormous transaction, and would cause a rise or fall of 50¢ a barrel in one day.

But during all these years there was no organized oil exchange, no official building in which business could be carried on. At last the trade grew to such proportions that something of the kind became absolutely necessary and a number of oil men finally conceived the idea of organizing an Exchange after the style of the Stock Exchanges in the great cities. In consequence of this feeling the subjoined document was gotten up; circulated among the oil men, and in a very short period obtained the signatures as given below:

Whereas, The undersigned, dealers, producers, refiners and brokers in petroleum, believing that the interests of our trade would be advanced by an organization with suitable rooms, properly officered and with laws and rules for our government,

Therefore, We do hereby, by our signatures, resolve ourselves into an association to be known as "The Titusville Oil Exchange," and it is understood that we are by this article made amenable to the rules and regulations of such association as they may hereafter be made and adopted.

Titusville, Pa., January 23, 1871.

L. H. Smith,
A. P. Bennett,
Wm. H. Abbott & Co.,
Porter, Moreland & Co.,
Clark & Steele,
Josiah Lombard,
S. P. Boyer,
J. T. Briggs,
Murray & Emerson,
Jos. Bushnell,
Wood & Taylor,
Platt B. Crosby,
W. W. Thompson,
R. H. Lee,
Tack & Lowe,
J. G. Benton,
W. H. Wallace,
J. M. Comey,
D. J. Thayer,
S. Van Syckel,
Hugh O'Hare,

Wm. F. Newton,
Jas. A. Hooper,
H. Dunham,
Owston & Sowers,
  by Geo. A. Ball,
S. H. Stowell,
  for J. H. Herbert & Co.,
S. W. Blakely,
Jonathan Watson,
  by J. T. B.,
A. T. Comer,
D. H. Cady,
Bailey & Gillmor,
R. W. Evans,
Geo. A. Ball,
W. B. Roberts,
B. N. Hurd,
A. A. Dame,
L. H. Severance,
John R. Drum,
W. B. Sterrett,

C. Irwin,
F. E. Hammond,
Collins Bros.,
J. A. Coutant,
Bostwick & Tilford,
R. H. Boughton, Jr.,
H. J. Davis,
H. W. Faucett,
O. C. Phillips,
Pickering, Chambers & Co.,
Emery Brothers & Co.,
Wm. Braugh,
D. O. Wickham,
Vandergrift & Co.,
S. Q. Brown,
S. A. Woods,
Hinkly & Allen,
J. D. Sterrett,
Williams Brothers,
A. H. Bronson,
Wallace Pierce,
Jackson & Cluley,
C. Roudebush & Co.,
A. N. Perrin,
Cadwallader & Warner,
Geo. K. Anderson,
G. Shamburg,
R. L. Kernochan,
M. Brownson,
M. Stewart,
Jno. H. Dilks,
Reuben Carroll,
Morris, Tasker & Co.,
  by C. T. Fowler,
E. T. Hall,
J. H. Broas,
A. L. Ackerman,
R. T. Starr,
A. R. Williams,
J. H. Winsor.

J. O. Wilkinson,
Chas. H. Duncan,
George Irwin,
Wm. Gardner,
N. M. Barney,
H. L. Hershberg,
John Eaton,
William Webster,
Henry C. Ayers,
T. T. Mapes,
O. D. Harrington,
Geo. Wheaton Deans,
Lyman Stewart,
J. G. Blair,
W. W. Bloss,
James Parshall,
E. A. L. Roberts,
Henry Byrom,
E. W. Granger,
J. C. Cornwell,
M. C. Egbert,
K. Brett & Son,
J. W. Butters, per S. H. S.,
James Burns,
National Tube Works Co.,
  by J. H. Flager,
J. W. Ormsby,
H. W. Temple,
M. August Perry,
Henry E. Wrigley,
C. C. Duffield,
Geo. J. Sherman,
T. C. Joy,
J. N. Pew,
R. H. Sargent,
Paul W. Garfield,
F. W. Andrews,
H. A. Hutson,
Wm. Gilchrist,
  Tidioute.

The above call at once brought about the desired result, and a preliminary meeting was called and numerously attended at the American House on the 14th of January, 1871.

The meeting was called to order by A. P. Bennett. L. H. Smith was appointed President, and John D. Archbold, Secretary. On motion of J. Foster Clarke a Committee on permanent organization was appointed, which consisted of:

A. P. Bennett, John D. Archbold, A. H. Bronson, S. P. Boyer and J. Foster Clarke. To this committee Si Lombard and L. H. Smith were subsequently added, on motion of A. H. Bronson.

This committee was instructed to draft by-laws, after which the meeting adjourned to meet again on the 23d of the same month.

The adjourned meeting was held at Corinthian Hall. After the Committee on Organization had reported, L. H. Smith, the Chairman, declared that the nominations for a permanent organization were in order. The following was the result:

President	L. H. Smith
Vice President	Dr. G. Shamburg
Secretary	John D. Archbold
Treasurer	J. Foster Clarke

The meeting then proceeded to the election of Finance and Room Committees, with the following result:

Finance—S. P. Boyer, A. P. Bennett and Henry Hinckley.
Room—L. Emery, D. H. Cady and H. B. Porter.

On motion the Room Committee was instructed to look out a suitable location and report at the next meeting, which took place at Corinthian Hall, February 9th, 1871.

At this meeting the Room Committee reported, stating that the room (now the dining room) of the Parshall House—49 feet by 22 feet—had been offered for $2,500 a year, but they thought it could be had for $2,000. A motion was made that the room in question be rented at the latter named sum for one year, with the privilege of four more. A long discussion ensued, and the meeting finally adjourned without definite action.

The next meeting took place at the office of D. H. Cady, February 13, 1871, when after some debate it was agreed to rent the Parshall House room, and the Room Committee were instructed to act, both on that and on getting them suitably furnished. No delay was made with the work, and on the 13th of March, 1871, the new organization met for the first time in their Exchange, fronting on Washington street. The room was handsomely furnished, and was visited by great numbers, who were loud in their expressions of admiration at its beauty and the perfection of its arrangements. This was the first Oil Exchange ever opened or thought of and to Titusville, therefore, belongs the particular honor of being the mother of the Oil Exchanges. From the very first day of the opening, the large hallway, fronting on Spring street, from which there was the same side entrance to the Exchange as is now to the dining room was thronged with oil men, particularly in the evenings, and it was almost with difficulty that one could pass through the crowd. In summer weather the sidewalk on Washington street was also the scene of the liveliest animation and in that respect was far ahead of anything that has been since seen around subsequently built Oil Exchanges.

Things went smoothly on; the new institution became more and more popular as time passed away, but nothing of a special nature occurred beyond the ordinary oil excitements chronic in those days (though they would be considered extraordinary now) until January 8th, 1872, when the first annual election of officers was held for the ensuing year, resulting in the election of the following ticket:

President	Paul W. Garfield
Vice President	M. E. Bassett
Secretary	John D. Archbold
Treasurer	J. Foster Clarke

The first year of tenancy was now drawing to a close, and as the expiring year had advanced, so had the importance and dimensions of the oil trade, till at the time we are writing of these had grown so large that the Parshall House Exchange was found to be hardly roomy enough to accommodate the increasing membership.

So on the 19th of February, 1872, a meeting of the Exchange was called for the purpose of discussing the question of moving to other quarters when the first year's tenancy had expired. A long discussion on the subject ensued. Some advocated locating in what was then called the "Iron-Clad Building" (now the Wakefield Block), while others held different views, and in the result no conclusion was arrived at at that time. Another meeting on the question of moving was held February 24th, when a further long debate on the subject ensued, and Mr. Parshall, thinking that the members were determined to carry their plan of moving into execution, made an offer of giving the room free for the year, if the Exchange would find heat and light. This offer was rejected however, and finally it was settled that the Exchange should move, the location decided upon being L. H. Smith's building on the east side of Washington street, and in the rear of the "Iron-Clad." This decision was finally carried out and on the 13th of March, 1872, we find the Oil Exchange meeting in their new quarters, which from that time was known as "The Exchange."

The new location was handsomely fitted, and every convenience which could be thought of at that time was adopted, the crowds which used formerly to throng the southwest corner of Spring and Washington streets now being shifted to the other side of the street. And still the membership kept on increasing, and still new oil excitements would start up at different points and the more this was the case the greater became the influx of people to Titusville.

At last the time came round for the second annual election of officers and this took place January 13th, 1873, at which time the following nominees were chosen, and they were, as will be seen from the list, with one exception, that of the Treasurer [Secretary], the same as those elected the previous year, viz:

President	Paul W. Garfield
Vice President	M. E. Bassett
Secretary	D. W. Lockhart
Treasurer	J. Foster Clarke

During this year long animated discussions took place on The South Improvement Company, and its relations to the producers, the great majority of whom at that time were members of the Exchange. These discussions were often acrimonious, that is acrimonious as against the majority—a corporation which the producers regarded as their greatest enemies. It is outside our province in a history of the old Oil Exchange, however, to enter into the details of these matters; the famous shut-down movement, or the final overthrow of the great monopoly. Those questions are merely incidental to the subject of a history of the old Oil Exchange, and not immediately connected with it.

To return, therefore, to the history itself, there is little to chronicle until the next Annual Election of Officers, which occurred January 12th, 1874. The chief noticeable feature of this election was that the offices of the Secretary and Treasurer were combined. The following were the elections made:

President	J. Foster Clarke
Vice President	R. T. Leach
Secretary and Treasurer	D. W. Lockhart

Almost uninterrupted prosperity had hitherto marked the course of the oil trade, with the exception of 1861, when oil fell to 10¢ a barrel, though it had sold as high as $20 the year previously. After that, however, the trade, though fluctuating, may be considered to have been a prosperous one, when we compare it with the present time. But in 1874 this prosperity began to decline, and though the year opened with oil at $1.20 a barrel, yet in November of that year it had fallen as low as 55¢. Developments and the discovery of new sources of supply had gone hand in hand together so fast that the stocks that year accumulated to a much larger amount than during any previous one in the history of the trade up to that time. The production, too, for that period of the oil history, was considered threateningly heavy, reaching in July nearly 33,500 barrels a day, while the consumption was only computed at about 30,000 barrels. The trade had not hitherto been nurtured in the school of apparent adversity, and for the first time something like a cloud began or seemed to be beginning to settle over the Oil Exchanges (we say Oil Exchanges for Oil City had long followed since Titusville's example, and had an Exchange too— an Exchange which was carried on in Griffith's drug store on Railroad street). The low price of oil was what troubled our busy Exchange at that time, but by the date of the next annual election of officers matters were looking brighter, with a fairer outlook in prospective. This election was held January 16, 1875, and resulted in the following choice:

President	J. Foster Clarke
Vice President	R. T. Leach
Secretary and Treasurer	H. L. Hershberg

In the following month the members seem to have grown tired of their quarters in Smith's building on Washington street, where they had now carried on business for four years, and on the 8th of February a meeting was once more called to discuss the question of moving, the objective point being the Ralston & Harrington Block. The meeting, at which Mr. Harrington was present, was among the most animated and amusing in the history of the old Exchange. Debate ran high. Mr. Smith, the owner of the building didn't take a movable view of things, and offered to give the rooms free to avert the threatened calamity. Mr. O. D. Harrington then jumped up and said he would give his rooms free for a year, find heat and light and provide a janitor for that period. Mr. L. H. Smith was determined not to be outdone, so he covered Mr. Harrington's offer, and promised to give $100 besides. On the other hand, Harrington covered Smith's offer with $200 bonus. Then Mr. E. A. Houard offered to supplement Smith's offer with a further hundred dollars, so as to equal Harrington, but in the result the meeting adjourned without arriving at any conclusion.

After this the subject of moving remained officially in abeyance, though frequently discussed, till April 12th, 1875, when another motion was made to move to the new locality. Mr. Smith now withdrew his objections, and Mr. Houard being released from his obligation of $100, the motion was carried, and the Exchange at once removed to the Ralston & Harrington Block, where, a few days afterwards, we find the bulls and bears carrying on business just as comfortably as they had previously done on Washington street, though beyond the removal nothing of particular interest occurred till the first annual election of officers took place in the new Exchange, January 10th, 1876, being the fifth in the history of the institution, which had now flourished for six years.

The result of the election was as follows:

President	J. Foster Clarke
Vice President	E. A. Houard
Secretary and Treasurer	H. L. Hershberg

It was during the fall of this year that the great squeeze in refined took place, and that crude reached a point above $4.00. This lasted till the following spring, and during that period our Exchange presented many of the scenes of that old life and vivacity which used to characterize it in its earlier and more youthful days.

The next annual election did not take place at the usual time, viz: in January, but was postponed till the following March, 1877. At this election Mr. Hershberg retired, though requested to serve another term, which, however, he declined on account of sickness, and handed $1,700 over to his successor. The choice was:

President	J. Foster Clarke
Vice President	E. A. Houard
Secretary and Treasurer	M. W. Quick

In the spring of this year was the memorable transportation fight between the Standard and the Empire Transportation Company, the Pennsylvania Railroad and other corporations, while the fall saw all these difficulties vanish, and saw also the merger of the Empire Pipe Line with the United. During this year, too, prices began rapidly to decline, and once more a dark shadow began to settle over our Oil Exchange.

But space and time presses, and we must pass on to the next Annual Election of Officers on January 14th, 1878. Owing to some change in the Constitution, three Vice Presidents were appointed this year for the first time, instead of one as theretofore. The selection made was:

President	M. W. Quick
1st Vice President	A. P. Bennett
2d Vice President	J. W. Jackson
3d Vice President	Sam'l Comfort
Secretary and Treasurer	Jas. M. Hooper

In 1878 the new Exchange in Oil City was opened, but no other event occurred during this year, except the periodical excitement caused on change by the monthly sessions of the Producer's Protective Union, which had been organized in September of the previous year, but which really had little or no bearing on Exchange transactions. We will come, therefore, to the next annual meeting, which took place on the 15th of January, 1879, when the choice was:

President	W. H. Wallace
1st Vice President	A. N. Perrin
2d Vice President	E. O. Emerson
3d Vice President	J. J. Carter
Secretary and Treasurer	J. M. Hooper

The principal events of '79 were low oil, and the opening of the Bradford Oil Exchange, so that it will be seen Titusville's example had been spread far and wide, for besides Oil City and Bradford, New York and Pittsburgh, not to speak of many minor places, had followed her lead. Hitherto we have forgotten to mention Parker in this report, but although that once busy Exchange has been left over by oversight, and is mentioned last, she was by no means the least of our departing Exchanges numerous progeny.

So it will be seen that the enterprise born in Titusville carried its fruit far and wide, and while the old Exchange is shortly to be eclipsed by the new organization, it may well be proud of the product raised from the seeds of enterprise it has sown. But passing along with time, we come to the next, and as it has proven, the last Annual Election of Officers for the old institution. This took place January 12th, 1880, and resulted as follows:

President	W. B. Sterrett
1st Vice President	M. N. Allen
2d Vice President	H. C. Bloss
3d Vice President	H. Y. Pickering
Secretary and Treasurer	James M. Hooper

In the early part of this year, a new and more commodious Exchange was advocated—one that should do honor to Titusville, and compare favorably with the finest of any of her sisters. An organization was formed for the purpose, out of members of the old Exchange. The question was soon settled, but we have nothing to do with the history of the new Exchange in this article, further than it relates to the history of the old Exchange, and especially to that part of it which touches the close of its career.

The last annual meeting of the old Exchange—the first one of its active and busy life was held on Monday, January 10th, 1881. At this meeting the present officers were directed to hold their present offices till after the dissolution. Vice President M. N. Allen occupied the chair, and the following report of the organization's financial condition was submitted by the Treasurer:

Jan. 13, 1880, Cash on hand	$1,262 82	
Jan. 13, 1880, Cash received for membership	289 00	
Jan. 13, 1880, Cash received for interest on city bonds	115 50	
		$1,667 32
Disbursements for 1880	$1,224 86	
Balance	442 46	
		$1,669 32
	$1,669 32	
Jan. 1, 1881, Balance cash	442 46	
Jan. 1, 1881, City bonds	1,500 00	

Mr. Hershberg then offered the following resolution, which was adopted:

Resolved. That the Finance Committee and the Treasurer are hereby appointed a committee to close up and settle, on the 31st day of this month or as soon thereafter as possible, the affairs of this Exchange and divide the assets thereof pro rata among the present members thereof, and that the Secretary be instructed to deliver up at that time all the books and papers in his custody to the Secretary of the Titusville Oil Exchange incorporated. Carried.

The following resolution was offered by Mr. McCort and adopted:

Resolved, That the assets of the Titusville Oil Exchange, including the bond held by the Exchange, to be sold at public auction by the committee appointed for that purpose, on Saturday, January 22d, at 3 p. m. Carried.

The following communication from the President of the new Oil Exchange was read and ordered published in the city papers:

TITUSVILLE OIL EXCHANGE
Titusville, Pa., Dec. 31, 1880.

W. B. Sterrett, Esq., President, Titusville Oil Exchange.

Dear Sir—Yourself and all members of the Titusville Oil Exchange are most cordially invited to be present, as guests, and participate with us in the formal opening of the Titusville new Oil Exchange on Thursday, January 27, 1881.

I have the honor, also, to request that, as the presiding officer and representative of the Titusville Oil Exchange, you favor us with some remarks upon the occasion.

The opening exercises will be held in the Assembly Room of the Exchange at 3 p. m. Reception and ball in the evening at 9 o'clock.

I remain, dear sir, yours very respectfully,

John L. McKinney,
President "The Titusville Oil Exchange."

This was the last of the proceedings, and on Saturday next the auctioneer's hammer will knock down all the assets of the old institution, including a $1,500 Titusville City School bond, to the highest bidder. The furniture and fixtures, however, will be allowed to remain till the life of the old Exchange expires, which will be on Wednesday evening, January 26th, after a life of nine years and three days.

167. BRYAN'S IRON WORKS

As the petroleum industry developed, it provided a stimulus to all other branches of industry; coopers worked to capacity; tinners made five-and ten-gallon cans; chemical laboratories worked over-time in producing acid and alkali; and machinists had more orders for machinery than they could fill. One of the pioneers in developing an iron works in the oil region to produce engines, boilers, iron barrels and tanks, stills, derrick rigs and tools, and other machinery was John C. Bryan. The following story of the development of his iron works at Titusville was reprinted in the *Titusville Morning Herald,* June 30, 1871.

John C. Bryan was born in Ireland, December 25, 1831, and came to America in 1848. He settled in Erie, Pa., there learning the trade of a machinist, and working thereat until 1858, when he returned to Ireland on a visit to his friends.

In the spring of 1859 he returned to America and at once found a location at Warren, Pa., as foreman in the machine shop of Brown & Bros. He here built the first steam engine ever made in Warren.

While in the employ of Brown Bros. oil was discovered at Titusville, and in a short time the fever of operation and speculation extended to all the surrounding country. All kinds of power were brought into requisition to make a way down to the deposits of this new found mineral wealth. Although Col. Drake had used a steam engine to drill his, the first well, still this was a mode far too expensive to get into general use. Horse-power, water-power and "spring pole" power were used very extensively for a long time, but as the first and second sand oil became exhausted, and it became necessary to go deeper, the horse, waterwheel and sapling were supplanted by steam engines, and this created a demand for capital and ingenuity in their manufacture. At this time everything iron came from abroad. Erie shops manufactured some, but their work did not suit the metropolitan tastes of operators, who were mostly Eastern men, and as a consequence the great majority were ordered from New York and further east.

At this juncture Mr. Bryan suggested to the Messrs. Brown a probable profit in the manufacture of engines. They did not accept the idea favorably, not believing themselves able to compete with older works, and they were finally only induced to try the experiment by the generous offer of Mr. Bryan, which reflects great credit upon his penetration and judgment. This was to make one and take the cost out of his own wages if they could not dispose of it. However, it was sold as soon as completed, and six others ordered. These were but of six horse power.

Mr. Bryan was also at this time engaged in the manufacture of pole tools, the rope not being as yet successfully used. He constructed the first set of these tools made in Warren, only a few months after the discovery of the oil by Drake, March 5, 1860. About this time Messrs. Kingsbury, Ames and Richards, men from the shop of Brown Bros. at Warren, erected a small foundry in Titusville, where the Petroleum Iron Works now stand, and applied to Mr. Bryan to come into their employment. He did so, and after working for them for six months found that they were not conducting the business profitably and must soon break up. He formed the project of purchasing the entire concern, and applied to Mr. William McMullen, then doing business in Warren, for assistance, which resulted in the purchase, by Bryan and McMullen, of the entire establishment, for six thousand dollars. As there were but two lathes in the shop at that time, the price paid was full value, at the least.

Mr. McMullen died in December, 1862, thus leaving the whole weight of responsibility resting upon Mr. Bryan. Business at this time was very dull, but he was not discouraged. He had resolved from the first to carry on the business at Titusville, and there only, let the consequences be what they might, and to live or die with the place. The shop employed but five hands, and there was but little work for even these. There was a general stagnation in all branches of business, and he was often advised to leave the place, but instead he only worked the harder and labored to adopt his manufactures to the wants of all classes. When there was no demand for drilling tools he made plows, scrapers, &c.

When the plow market was glutted he turned his attention to sawmill work. In the leisure hours of such times he busied himself constructing, improving and completing the pattern for a small engine, which he built and set up in the shop, hoping to get orders for more. In this he succeeded.

In the summer of 1864 the work was increased so that thirteen machines and about thirty men were employed. On the 22d of November, 1864, the whole of the works were burned down. The loss was about $42,000, and included everything.

On the morning after the fire his friends gathered about him asking what he was going to do. His answer was characteristic. He said: I am going to carry on the foundry business; I am not dead yet." The latter part of which, if not so classic as the closing speech of the immortal Webster, amounted to more, for he evinced signs of the most vigorous life by rebuilding the works the same winter, and placing them in complete running order by the 1st of March, 1865.

No sooner were the works completed than business came in more rapidly even than they could dispose of it. Operators were so impressed by the energy and perseverance of Mr. Bryan that they did not hesitate to apply to him and expect prompt action in filling orders, and they were not disappointed.

(It must be remembered that Mrs. McMullen still remained an equal partner after the death of Mr. McMullen.) The works now gave employment to about forty men, and everything was prospering finely, when the "rains descended and the winds blew and the floods of 1865 came," an event long to be remembered by oil men as the most disastrous blow ever struck at the oil business and the industries of the oil regions. Everything—trade, money and credit, seemed to be swept away. But those times are too vivid in the minds of all our citizens to need description here.

The always fertile resources of Mr. Bryan were again taxed to devise ways and means for the employment of his men and machinery.

In May, 1866, the firm sold one-third interest to Mr. Dillingham.

Later the same year, Mr. Bryan put in execution an idea of adding to the works a boiler shop—against the wishes of his partners, however.

The building of boilers at this time was so much of an experiment, and its success so doubtful, that the firm not only furnished all the machinery and stock, but agreed to give Mr. Ackerman, a practical boilermaker, one-half of all that would be made for one year for conducting the works, and the business was so limited that he did not even make common wages in that time. Operators preferred going abroad for their boilers to taking the chances on home manufacture. Still Mr. Bryan did not despair. He kept on and would occasionally sell a boiler, but this branch of the business did not flourish well during this and the two following years. In 1868 they added to the works a brass shop. They were induced to start the latter to enable them to supply the increasing demands for brass boxes, gibs and many other things for which they were dependent on foreign shops.

The works of Bryan, Dillingham & Co., are situated on Franklin street, and at the present time are surpassed by none in the oil regions or in Western Pennsylvania. The magnitude of these works may be inferred from their production of finished work, and men and capital employed. Four iron tanks have been completed of a capacity of 20,000 barrels each. The firm have also built over 200,000 barrels of iron tankage in the oil regions. The shop turns out six boilers and engines per week on an average; two derrick rigs and two sets of tools per day, beside casting and manufacturing all the brass work for their own use and for their wholesale and retail trade. The refiners' stills manufactured by this company have acquired a standard reputation. The well tools of the Petroleum Iron Works have gained a reputation not only in the oil region, but are known throughout the United States as well as in the petroleum districts of South America, Europe, Asia and Australia.

The firm employ 200 men, to whom they pay annually $160,000. and have a capital of $300,000 invested. Within the past six months they have prepared and put in operation some of the best tapping machines in the United States; and these are all necessary to meet the wants of the refiners, which is a large and growing interest in Titusville and vicinity. With seventy-two machines in their shops they do a greater diversity of work than any shop in the State. The success of this establishment, its wealth and reputation are certainly to be accredited to the perseverance of Mr. Bryan. Titusville has long been the radiating centre of our heaviest oil operators. The wants and suggestions of the operators, concurrent with Mr. B's ability to devise and execute, have conspired to the perfection of very many tools for drilling and fishing oil wells.

As a city, and one too of greatest business prosperity, Titusville is largely indebted to the energy and pertinacity of Mr. Bryan; his pertinacity to live or die with the place, and his courage in battling with hard luck and hard times. Others, with large capital, started at different times in the same business, but almost invariably succumbed to the pressure of hard times. His ability as a workman is unquestioned. Contracts for the erection of large refineries at New York have been awarded to him, and filled with such satisfactory results that other contracts of a like nature were offered in such numbers that it was impossible to fill them. And this when rival establishments offered to do the same work thousands of dollars less.

Mr. Bryan has recently invented a steam heater for hotel and private houses, which is pronounced superior to anything of the kind in use.

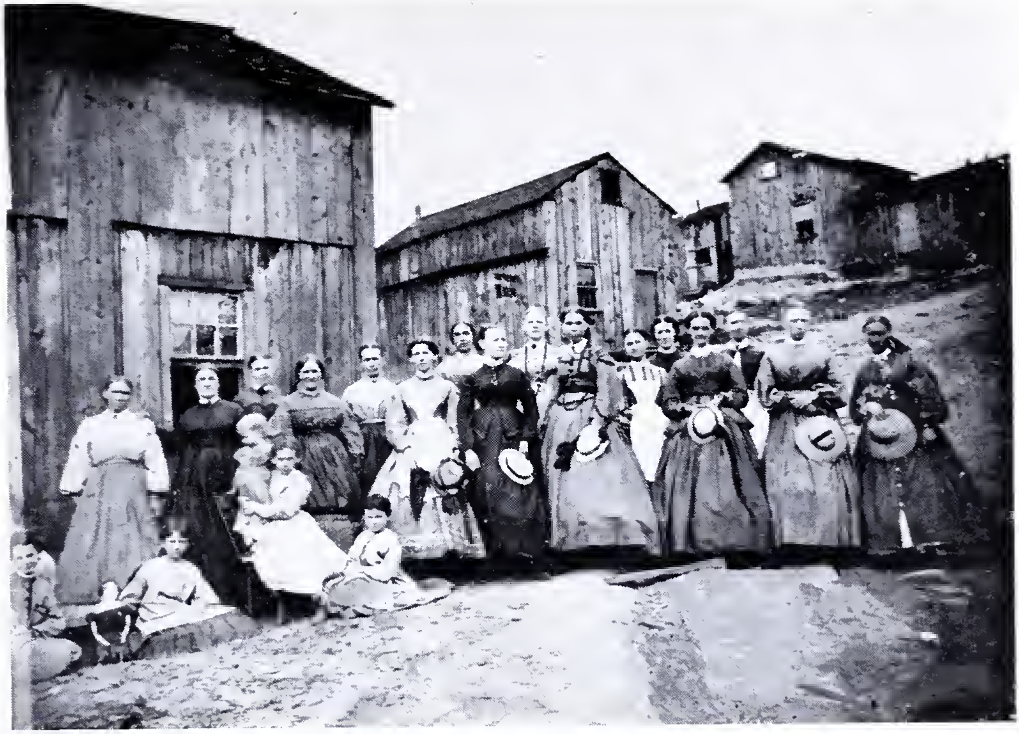
We have given these details of the growth of the iron interests of the oil regions, feeling that there is an important part in the history of our vast mineral wealth, and the means and modes of its production. We of to-day are alone interested in the business and successes of to-day. Looking back through but ten years, we can scan the entire history of petroleum in Western Pennsylvania. It seems but yesterday that Colonel Drake opened the mine of wealth which is now so successfuly worked, and whose bounty reaches to every civilized land. But in the future, when the present generation has passed away, the men who are now the supporting pillars of the great edifice of commercial industry and prosperity here erected, will live in the respectful memories of their successors.

168. Method of Refining Petroleum in 1871

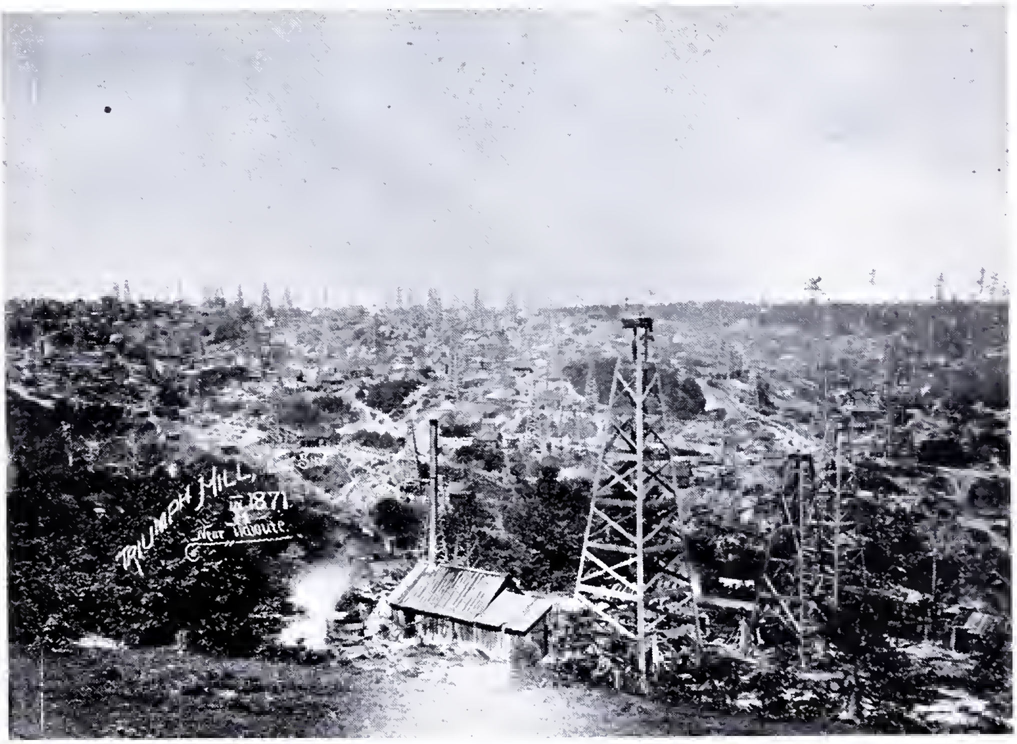
The following article, appearing in the *Titusville Morning Herald,* on September 1, 1871, is an excellent description of the method by which petroleum was refined in 1871.

Next to the production of petroleum there is nothing which has a stronger bearing on the material prosperity of Titusville than the success of our refineries. The art of refining oil, although it has made rapid strides since it was first undertaken a few years ago, is still in its infancy, and a wide field is open for improvement. There is a great laxity in the present modes adopted, and a great waste of material which could otherwise be utilized, and rendered more profitable.

Crude oil contains a volatile spirit called benzine, which is an alcohol, and not oleaginous in its properties. This spirit is more or less volatile, depending upon its gravity. The lighter portions are, in fact, so volatile that when separated from the heavier, and condensed by freezing mixtures in suitable vessels, they will boil at temperatures below thirty-two degrees Fahrenheit. This lighter portion is used only for surgical operations, in place of ether, to freeze the parts to be operated on, which thereby renders them insensible to pain. There is, however, a heavier or denser spirit called benzine, which is volatile at temperatures varying between 32 and 110 degrees of heat, and it is chiefly to rid the petroleum of this dangerous constituent element that refining becomes essential. The coloring matter and other impurities usually contained in oil have a tendency to clog the wick while burning in lamps, and by distillation this is also removed. Nine-tenths of refiners, and also of ordinary thinking people, have heretofore understood that tar and paraffine were part of the existing constituent elements of crude oil, which had to be separated in the stills. In fact this was until recently, an accepted truism by the scientific world. It has, however, been discovered that until it is decomposed by heat, there is neither tar nor paraffine in crude oil. The tar is caused by the oil coming in contact with an intensely hot fire, by which means carbon is precipi-



A FASHIONABLE AFTERNOON PARTY ON OIL CREEK
Mather Collection, Drake Museum.



TRIUMPH HILL, EAST SIDE, TIDIOUTE, 1871
One of the best producing fields in the early day was Triumph Hill. Wells nine-hundred feet deep pierced sixty feet of oil-bearing sand, which produced steadily for years. The east side of the hill was a forest of derricks. Mather Collection, Drake Museum.

tated, and a lighter oil liberated. When the heat is not quite so intense, a heavy hydro-carbon called paraffine is precipitated, and a very light vapor, which cannot be condensed, except by extreme cold and pressure, is liberated. These two substances have, therefore, to be separated in some manner. The paraffine and tar are run off into what is called the tar still, and by the admission of steam and a very hot fire the lighter portions are driven off, until nothing but pure carbon remains in the retort. This carbon is a great loss to the refiner, as it is the illuminating principal of the oil. Many refiners sell the tar and paraffine to other manufacturers for a mere trifle, and it is used for making lubricating oil. It will therefore be observed that the refiner has by the ordinary process to get rid of a certain amount of volatile spirit, and also a certain amount of tar and paraffine, which is deposited in the retorts. The total loss amounts to about 30 to 40 barrels in every hundred, or in other words, the refiner generally gets only 60 to 70 barrels of refined oil, out of every 100 barrels of crude. The tar and paraffine and also the benzine he sells for less than half the price of crude.

In order to eliminate the benzine, the crude is generally put into a tubular still, and heated to 212 degrees by steam, until in the judgment of the operator all the benzine is driven off, or in other words, until it stands a certain gravity, say 60 to 63 degrees Beaume. The waste of this process can be readily imagined, when it is remembered that a large amount of valuable distillate has also gone off with the benzine, and that, technically speaking, anything which will not evaporate above 110 degees of heat, will make good refined oil, while the process has been conducted by steam at 212 degrees of heat. This benzine and good distillate mixed, as we said before, is often sold for half the price of crude. Some refiners, however, put it back in the benzine still, and again run it through the same process. They thereby save about 50 per cent. of good distillate, but even then a considerable amount of distillate must go with the benzine when steam is used as a source of heat.

After the benzine is drawn off from the crude, the oil is put into the ordinary still, and a fire is built underneath. On the top of these stills is a vacuum and pressure gauge, so arranged that the pressure will stand at from half a pound to one pound to the square inch of surface. In course of time the temperature of the oil rises sufficiently to give off vapor, which is conducted to a condenser through pipes. These condensers are of two kinds. The one is the ordinary worm condenser in a large tank of water, which is so well understood as to require no explanation, and the other is a comparatively new device among oil refiners, called the spray condenser. This latter is a chamber of suitable dimensions, into which the vapor passes. A spray or shower of cold water is constantly precipitated in this chamber, and as it comes in contact with the vapor, condensation immediately ensues, and both the water and oil pass off through an exit pipe, to be afterwards separated in a suitable receptacle. Opinions concerning these two modes of condensing are about equally divided. The latter is, however gaining in favor. The danger of the spray condenser appears to consist in the possibility of the supply pipe becoming clogged from freezing, or other cause, or the supply giving out from the carelessness of operatives. Another danger consists in the manner in which it is applied. The condensing chamber is usually placed at the same elevation at the top of the still, and as close to it as possible. In the event of a sudden condensation in the still at the latter stages of the process when the temperature of the oil is anywhere between 400 and 700 degrees, Far. the water from the condenser would inevitably be drawn into the still, and an explosion of greater or less force immediately be the result. In order to avoid this, it would appear to become necessary to lower the condensing chamber about forty feet below the exit pipe of the still, and as a vacuum will not draw water to that height, none of it could ever find its way back to the still. One advantage claimed for the spray condenser is the sudden and immediate condensation of the vapors, as close to the still as possible, which it is asserted makes better and whiter distillate. If this really be the case, which is yet a matter of doubt, the exit pipes could be surrounded with cold water until they reach the spray condenser forty feet below.

At the end of the condenser, no matter of what kind, there is a small house or shed called the tail house, where the condensed fluids are turned into the different tanks about the refinery. Here the refiner watches the fluid, and judges by the color and gravity whether the process is going on too fast or too slow. If the distillate is dark in color, the heat is too intense, and the fire doors are opened. When water is mixed with the distillate, as it comes from the spray condenser, or where steam is used, the color looks much whiter than it really is, and the refiner is very liable to be deceived, which is another disadvantage of this mode of condensing, but by practice and experience this objection may be entirely overcome.

The condensing water is a point of much importance. In Titusville and vicinity, we have a substrata of gravel, in which is deposited an inexhaustible amount of pure spring water, only 55 degrees of temperature in the hottest summer season. This gravel lies at a depth between sixteen and thirty-two feet beneath the bed of Oil Creek, and is obtained by sinking artesian wells from two to six feet apart from each other. Moreland & Co's refinery uses upwards of ten thousand barrels of this water every twenty-four hours, and the other refineries in proportion. The water is also impregnated with mineral deposits of the highest value, in causing precipitation after the distillate has been treated with chemicals. This virtue is possessed by no other water that we have any knowledge of in the country. These two qualifications of low temperature and chemical reaction, are therefore very much in favor of our refined oil, both in point of economy and quality.

But to return to the still, where we left it, with the fires started, the heat is gradually increased, the lighter products being vaporized first, and the heavier remaining in the still. When the temperature reaches a certain point, as we previously stated, decomposition takes place, and a large amount of gas is eliminated, which is permitted to go to waste in the open air. Some refiners, however, conduct a part of this gas through pipes, by means of a jet of steam, to their boiler furnaces and it is consumed as fuel; the rest escapes. Moreland & Co's refinery generates as much gas daily as would supply the city of Titusville if it were conducted into retorts and converted into a permanent gas. It is impossible to tell at what temperature the stills are run, as there is no means of determining the fact. This is a great oversight, as distilling oil is altogether a question of temperature. Every still should be supplied with at least one pyrometer. After the oil is all off and nothing but tar and paraffine remain, the latter is drawn in fluid state into the stills and the refined oil still is recharged. The distillate is now pumped into what is called the agitator, a large tank lined with lead and cone shaped at the bottom, where it is treated with chemicals. The oil as it is here admitted from the stills generally stands at a temperature of about seventy to eighty degrees. According to the most approved method the temperature has to be reduced to sixty degrees before the treating commences. This is done by the application of cold water. When the water has settled it is entirely drawn off from underneath. Great caution must be exercised that no traces of water are left in the oil. The oil is now found to be more or less colored, depending altogether on the care with which it has been distilled. For the purpose of decomposing and precipitating this coloring matter, as well as ridding the oil as much as possible of ordor, a certain amount of concentrated sulphuric acid is introduced. This acid possesses the valuable property of decomposing all organic matter with which it comes in contact. It separates the oxygen and hydrogen from the organic matter, and there remains over a black, charred, insoluble mass, which precipitates along with any free carbon that may have come over with the oil. By-sulphide of carbon is also formed by chemical decomposition, and the oil is spoiled if too much acid is used. The treater has therefore to use a great deal of discretion in the application of just enough and no more of the acid than is required to neutralize the coloring matter, which he only determines by long practical experience. The amount varies from three-fourths to one and a half per cent, by measure. Some treaters prefer to put the whole amount of acid in at once, while others with a little more caution apply it in two or three successive divisions. The oil is agitated during the process of treating by a powerful blast of air from a steam air pump, for a length of time which varies according to the views of the different treaters, say from twenty-five to fifty minutes, which is found to answer the purpose better than any other mechanical means. The acid is then drawn off from the bottom, and the distillate thoroughly washed with water until as much remaining acid as possible can be washed out of it. In order to neutralize the remaining acid, it is now treated with caustic soda in proportion, which varies say from one-fourth to three-fourths of one per cent. The alkali is subsequently washed out with warm water, and here the value of Oil Creek water is fully demonstrated, by the rapid and perfect precipitation of every impurity. The oil is allowed to settle for twenty-four hours, and is then ready for market.

By the above cursory glance at the main features of the refining business, it will readily be perceived that although great improvements have been made, there is still a heavy loss, which can only be saved by a thorough reorganization of the apparatus employed. First, by some more simple and practical device for preventing good distillate, which can be converted into marketable refined oil, from going off with the benzine; and second, in the employment of a still which will prevent the decomposition of the oil during the process of distillation, and the formation of tar and paraffine. The present mode of treating with chemicals after distillation is an operation so very nice in its nature, that none but men of long experience can be entrusted to conduct it. They know that acid, water, and alkali, will produce certain results, but the reason why is a matter of complete obscurity to those who have not studied chemistry. They therefore go by guess work and have no means of determining proportions or reactions by chemical laws. There is little room for doubt that eventually oil will be refined without any loss, except that which arises from the separation of the spirit, and the fractional amount of coloring matter and mechanical impurities which it may contain. The loss in such a case would be comparatively trifling and would enable the refiner to pay for his works in a very few months. Even now there are some refiners in Titusville who can make a margin over those in other sections of country sufficient to pay the cost of their entire Works every twelve months. Nor is the product hereby deteriorated, on the contrary it sells for half a cent advance over ordinary current market rates.

169. THE GROCERY TRADE IN THE OIL REGION

With the completion of the Drake Well in 1859, hundreds and thousands of people rushed to the Oil Creek region to seek a fortune. As a result, the grocery business, among many others, received a tremendous impetus. The following story, taken from the *Titusville Morning Herald,* November 24, 1871, of McEowen & Company of Titusville illustrates the extent of the grocery trade.

I may surprise most of our readers, yet nevertheless it is a fact, that there is a single grocery house in the Pennsylvania oil regions doing business, falling a little short of a million a year, and that this enormous business is done strictly within the limits of the oil region. It is well known that the oil country is densely populated and that the population is eminently a consuming one producing nothing but the great staple, petroleum, hence the great demand for groceries and provisions. The house above referred to is the well-known one of McEowen & Co., of Titusville, located on the corner of Spring and Monroe streets, in that enterprising and go ahead City. The firm is composed of G. C. and H. McEowen and C. H. Ames. Mr. G. C. McEowen, the senior member of the firm, was formerly connected with the House of Clark, McEowen & Co., doing a large business in the jobbing and retail trade. In the spring of 1860 perceiving the damaging effects of connecting the retail with the jobbing trade, he conceived the idea of establishing a house for the benefit of dealers only, and dissolving his connection with the house above mentioned, established himself together with his brother H. McEowen and Capt. L. E. Merry, at their present location. By dint of energy, perseverance, and a perfect knowledge of the wants of the oil region, they rapidly built up a trade, which astonished even themselves, and exceeded their most sanguine expectations. The idea of selling only to dealers, and refusing to sell to consumers, in any quantity, either great or small, was an experiment, the success of which was speedily assured, by the merchants flocking to their store and pledging their patronage. Their trade the first year reached the enormous sum of six hundred and twenty five thousand dollars ($625,000). The second year the sales footed nearly eight hundred thousand dollars ($800,000,) and this, their third year, they bid fair to reach nearly a million dollars. This is an enormous trade, even for the best city houses, and more astonishing when we consider the small area over which their trade extends. To give an idea of how small this space really is we were informed that their traveling salesman, although he never is away over night, going away in the morning and returning in the afternoon, visits personally two-thirds of their customers every week. In November, 1871, Capt. L. E. Merry retiring, Mr. C. H. Ames was admitted as a general partner, he having previously been interested as a special partner. Although Mr. Ames does not give his personal attention to the business, being largely interested in other ways, yet he is a valuable acquisition, bringing, as he does into the concern large capital, rare sagacity, and large business experience. A glance over their establishment will satisfy any one possessing any knowledge of the business that their stock is the largest and best selected of any house in the state, outside of Philadelphia and Pittsburgh, and not exceeded by any stock in the latter place.

The greatest precaution is taken in buying their goods, to see that they are of best possible quality, as they find that their trade will use nothing else. Their tea stock, which is on the first floor, is immense, and consists of all styles and grades. Their trade in this particular branch is very large, and is made a specialty with them. Buying in large lines from first hands, and selling at a small margin, they claim to be able to sell the retail merchant cheaper than he can buy abroad; a claim so reasonable that it is universally acknowledged by all the best retail merchants within the circle of their trade. We also find on the first floor a large stock of canned goods of every description, among which we noticed the famous "Quinton" tomatoes, known to consumers everywhere as being the very best tomato put up; also a large stock of foreign and domestic dried fruits, nuts, &c., together with green and roasted coffees, sugars of all grades, confectionery, cigars and tobacco; among the latter of which we noticed the celebrated "Nerve" fine cut, so well-known to lovers of the weed, for which they are sole agents. They have recently secured the agency for the sale of the goods manufactured by the world-renowned house of P. Lorillard & Co., which is sufficient evidence of their large trade in this line of goods. On ascending to the second floor we were ushered into a little world of light groceries, consisting in part of baskets, pails, tubs, washboards, brooms, mopsticks, and an endless variety of wooden and willow ware, together with an immense stock of crackers, in barrels and cases, baking powder, starch, spices of all kinds, blacking and scrub brushes, blueing, blacking, stove polish, fancy groceries of all kinds, and in fact everything necessary to fit out a first-class retail store. The loft above is used for light goods of all kinds. On descending to the cellar, goods gathered from all parts of the country met our gaze. Tier after tier of mackerel, white-fish, herring, pork, syrup, molasses, pickles, vinegar, and butter; casks, hogsheads and barrels enough, one would almost believe, to last the entire oil country through a seven year's famine; yet we were told this would not last a month, constant purchases being necessary to meet the demands of their business. They also have a large storehouse on Mechanic street, which is in constant use, their large building being entirely inadequate to store their stock. They also have a great many goods bought which are stored in New York and Philadelphia. Their present stock in store, not counting goods stored in New York and Philadelphia, is estimated at one hundred and twenty thousand dollars ($120,000). They aim to make their purchases as nearly as possible from first hands, thus giving their customers the benefit of one or two profits over many jobbing houses, and their long experience in the business has given them a pretty fair idea where and who first hands are. Their great pride is their flour trade. Having introduced an entirely new and unknown brand into the market and sold it strictly on its merits. Their sales are now averaging over five hundred barrels per week, and the "Columbia and Lake Mills" flour is a household word "on the Creek." We were surprised at the smoothness and regularity which characterized their business transactions. Everything seemed systematized, each one knowing his duty perfectly and doing it quietly and well, and all moving along successfully, guided by a skilled hand grasping firmly the wheel, and knowing well the rocks and shoals on which others had been wrecked, and carefully avoiding them. Their two magnificent teams are taxed to their utmost in delivering and receiving goods. One being used almost exclusively in delivering to their city trade, which is very large. The secret of their success, if it be a secret, is their well-known integrity in business transactions, together with a perfect knowledge of the wants of their customers, and a large and varied stock to meet their wants at as cheap and cheaper rates than they can be bought abroad. It affords us pleasure to record the success of this firm, composed as it is of self-made men, who have passed through the varying fortunes of the oil region, and by upright, straightforward conduct in their business relations have won for themselves a reputation second to none, and reaching far beyond the limits of their trade.

170. PRESIDENT GRANT VISITS THE OIL REGION

On the morning of September 14, 1871, President Grant arrived by special train in Titusville to begin a tour of the oil region. An immense crowd had gathered at the depot to greet the Chief Executive. At the approach of the train, Coleman's Band blared forth the welcome strains of "Hail To The Chief," but the sounds of the drum and trumpet were drowned in the huzzas of the multitude. The President and his party, including Mrs. Grant, Miss Nellie Grant, and Jesse Grant, were taken to the Parshall House. Thousands of citizens milled about the hotel. Invited to the balcony to speak, President Grant spoke briefly but significantly about the importance of petroleum in the Civil War. The following remarks were taken from the *Titusville Morning Herald,* September 15, 1871.

FELLOW CITIZENS: I feel very grateful to you for this kind reception. This is my first visit to the oil regions. I am aware that this section of the country furnished its full share of men and means for the suppression of the rebellion, and your efforts in the discovery and production of petroleum, aided materially in supplying the sinews of war, as a medium of foreign exchange, taking the place of cotton. You are aware this is a much longer speech than I usually make. I again return you my thanks.

After eating breakfast at the Parshall House, the President's party returned to its special train and continued down Oil Creek, making stops at Miller Farm, Petroleum Center, Columbia farm, Tarr farm, and Rouseville. The party ate dinner in Oil City. In the evening, at a supper in the Exchange Hotel in Franklin, President Grant again spoke briefly to the assembled guests. His remarks are taken from the *Titusville Morning Herald,* September 15, 1871.

LADIES AND GENTLEMEN:—I thank you most heartily for the cordial welcome I have received here and throughout the oil regions generally, a pleasure which is enhanced by remembering, not alone how promptly Pennsylvania contributed her quota during the rebellion, but also the importance of her oil products as an element of national wealth and resource during the same period. If I could speak as eloquently as my friend Judge McCalmont, whom I have known for many years, I should have pleasure in talking to you at greater length. As it is, I must content myself with again thanking you.

171. A Brilliant Social Event in the Oil Region

With the acquisition of wealth, Titusville, known as the Queen City of the oil region, did not forget the educational, cultural, and spiritual side of life. The citizens built fine churches, enjoyed the best lecturers, orchestras, singers, and dramatic talent, bought the fastest race-horses, and ably supported an academy. The greatest social event witnessed in the oil region up to this time was the wedding of Miss Sadie Farel and William B. Sterrett. The affair reflected the character of the "petroleum aristocracy" which had developed by 1871. This account of the wedding is taken from the *Titusville Morning Herald,* October 19, 1871.

Last evening witnessed the most brilliant and imposing marriage ceremony that has ever marked the social history of our city, or in fact the entire oil region, it being the occasion of the solemnization of the bonds of matrimony between Mr. William B. Sterrett and Miss Sadie Farel, of this city.

The large number of invited guests present, the elegance of the toilettes displayed and numerous costly presents, together with the perfect arrangements for an evening's entertainment that had been made by Messrs. John and Nelson Farel, the brothers of the bride, at the Parshall House, far exceeded the most extravagant expectations of all present and formed a scene of nuptial gaiety that is seldom witnessed in older and more favored cities.

As announced by the stylish cards circulated among the friends and acquaintances of the happy couple two weeks ago, the ceremony was consumated at the First Presbyterian Church upon Franklin street, and although the hour for the ceremony was announced at eight o'clock, by seven carriages commenced to deposit their loads of happy people, and by half past seven the church was filled to its utmost seating capacity, and those who arrived later were compelled to find standing room as best they could. The ushers were Messrs. C. W. Isham, Geo. A Chase, Will Collins and R. L. Kernochan.

Tying the Knot.

It was after eight o'clock before the bridal cortege entered the portals of the sanctuary, which they did to the enlivening strains of the organist's most fascinating wedding march, and took their places before the altar. The tying of the knot had been intrusted to the Rev. Alex. Sinclair, the present pastor of the church, and who performed his happy responsibilities in a manner fully in keeping with the solemn yet pleasing character of the occasion.

The bride was most charmingly arrayed in a toilette of heavy white silk, en train, of unusual richness of texture, trimmed with point lace and with pipings of white satin and tulle. Her natural beauty, which is of the brunette order, was enhanced by a lovely wreath of orange buds and blossoms, from which depended a veil of white tulle. Her hair was arranged in coronal style, and an elegant set of pearls were the only ornaments of jewelry worn.

The bridesmaids were Miss Elma Broas and Miss Hattie Gibbs, of this city, and they looked exceedingly lovely in toilettes of white organdie en train, festooned with garlands of natural smilax leaves, and hair in pompadour style, with simple adornments of flowers and leaves.

The bridegroom appeared to the best advantage in a neat and elegant full dress suit, consisting of blue dress coat with gold buttons, white silk vest and necktie, white gloves and lavender pantaloons. The groomsmen, Messrs. R. H. Sterrett of Boston, and John Farel of this city, were attired in the conventional dress suit of black, with white vests and gloves.

The church was not decorated save at the chancel, where several bouquets of rare natural flowers were placed, on each side of which were two large standards of flowers.

After the conclusion of the marriage ceremony a reception was held at the Parshall House, whose parlors and salons had been especially prepared for the occasions. Messrs. F. W. Ames, O. Keese, A. R. Williams and W. W. Bloss were the reception committee at the hotel. The newly married couple received the congratulations of their friends in the large private parlor which had been converted into a bower of floral loveliness under the skillful touches of the florist, assisted by the many friends who contributed numerous boquets of natural flowers and ornamental floral work of various descriptions. After an hour or two devoted to receiving the good wishes and heartfelt congratulations of the guests assembled, the private entrance to the Opera House was thrown open and the sound of

Music and Dancing

soon announced a series of additional pleasures that few could resist.

The Opera House had been prepared for the occasion, and the irresistible strains of gay waltzes, galops and polkas, were rendered by the band, (which was from Buffalo, and the best to be found in Western New York). Nearly all surrendered for a brief season to Terpsichore and his enchanting amusement.

At half-past ten o'clock the doors to the dining-hall were thrown open and nearly three hundred guests sat down to the

Magnificent Wedding Banquet,

which for two hours afterward constituted the chiefest attraction. This supper was tendered by Messrs. John and Nelson Farel, the brothers of the bride, and like everything else was in keeping with the general magnificence of the affair. The dining hall had been ornamented with evergreens, garlands, wreaths, transparancies and mottoes of welcome, and presented a scene of beauty aside from the attractions of the table themselves, that has never been equalled by any social entertainment given in this city. Three tables extending the full length of the room had been prepared, capable of seating nearly three hundred guests, and all present were accommodated at the same time with seats, and ample justice done the fill of fare, which will challenge comparison with the best efforts of the metropolitan caterers, and which we give below.

RECEPTION SUPPER

Given by John and Nelson Farel in honor of
Mr. & Mrs. Wm. B. Sterrett,
at the Parshall House, Titusville, Pa.,
Wednesday evening, Oct. 18th, 1871, at 10½ o'clock
Wm. B. Sterrett. Miss Sadie Farel.

MENU.

Oysters on Half Shell.

Mock Turtle. Soups. Consomme.

Fish.

Boiled Kennebec Salmon, Lobster Sauce,
Baked Striped Bass, Champagne Sauce.

Entrees.

Fillet of Beef, Larded with Truffles; Fricandeau of Veal, with Mushrooms; Chicken Saute, a la Marengo; Mountain Oysters Breaded, Sauce Tomato; Escollope of Oysters, a la Maryland; Croquette of Rice, flavored with Orange, Calf's Head en Tortue; Broiled Woodcock, on Toast; Turkey's Liver, Saute, in cases; Macaroni, a la Cream.

Roast.

Saddle of Southdown Mutton, Currant Jelly; Ribs of Beef; Loins of Veal; Turkey, Cranberry Sauce; Capon, Mushroom Sauce.

Cold Dishes.

Boned Turkey in Jelly, Beef a la Mode Decorated, spic of Oysters, Pyramind of Buffalo Tongues, Pate de foies gras, Lobster Salad, Chicken Salad, Buffalo Ham garnished with Jelly, Wild Boar's Head Decorated, Round of Spiced Beef, Cold Pressed Corned Beef.

Relishes.

French Mustard, Worcester Sauce, Celery, Mixed Pickles, Lucknow Sauce, Pickled Beets, Walnut Catsup, Tomato Catsup, Horse Radish, Spanish Olives, Chow-Chow, Piccalilly, Coleslaw, Cranberry Sauce, Apple Sauce, Currant Jelly.

Vegetables.

Boiled and Mashed Potatoes, Baked Sweet Potatoes, Green Peas; Green Corn; String Beans; Tomatoes; Mashed Turnips; Lima Beans.

Game.

Saddle of Venison, Currant Jelly; Wild Turkey; Quail; Pheasant, Grouse; Canvas Back Duck; Wood Duck.

Ornamental Dishes.

Boquets of Natural Flowers; Wedding Cake, Decorated; Pyramids of Macaroons; Baskets of Flowers; Imperian Charlotte de Russe; Fruit Cake, Decorated a la Union; Pyramids of Marengue.

Pudding and Pastry.

English Plum Pudding; Brandy Sauce; Apple Pie; Cranberry Pie; Mince Pie; Gooseberry Pie; Cocoanut Pie; Green Peach Pie; Pound Cake; Spanish Kisses; Lady Cake; Fruit Cake; Assorted Candies; Orange Conserves; French Macaroons, Lady Fingers; Vanilla Marengues, filled with Cream, Sponge Cake.

Dessert.

Vanilla Ice Cream; Raspberry Water Ice; Charlotte de Russe; Champagne Jelly; Soft Shell Almonds, Raisins, Malaga, Delaware and Isabella Grapes; Oranges; Cream Nuts; Figs; English Walnuts; Madeira Wine Jelly; Pecan Nuts; Brazil Nuts.
Stilton Cheese. Mocha Coffee.

Upon the walls were the following mottoes.

"May friends surround you and your hearts be as light through your wedded lives, as they are to-night."

"May you be happy."

"May your future be bright, as it seems to-night."

The table ornamentations of fruit, pastry and confectionery were of the most elaborate character and displayed the good taste and skill of the originators, and it is with pleasure that we announce the entire bill of fare and its rich and varied courses of rare and costly viands as the work of the Parshall House cuisine.

Each table was arranged in a most sumptuous and inviting as well as artistic manner. In fact, nothing was left undone that could in the smallest particular add to the most fastidious epicurean taste of those present. The table committee were Messrs. J. J. Carter and J. W. Alexander, and with the efficient corps of waiters present, the many courses of delicacies were served in the proper rotation, and with methodical precision that gave the most perfect satisfaction to all at the festal board.

The Presents

were numerous and costly, and approximated in value several thousand dollars. These filled two large tables in one of the private saloons of the hotel, and were much admired by the guests assembled.

Among the more notable gifts were the following:

A large family Oxford Bible from the bridegroom's mother; a very handsome volume, finished in the finest Oxford binding of Turkey morrocco, with elaborate gold trimmings, and inscribed: "From Mother, Oct. 18, 1871." Accompanying this was a beautiful paper mache stand, inlaid with pearl and gilt and heavily ornamented.

Messrs. Gibbs, Russell & Co., the business associates of the bridegroom, presented a solid silver tea set of six pieces, including coffee and tea urns, water, sugar, cream and spoon-holders, all of solid sterling silver, beautifully engraved and bearing the monogram of the recipients.

From Geo. K. Anderson, a handsome combination set of thirty pieces, consisting of solid silver spoons, gold lined.

Pair of solid silver vases from C. W. Isham.

From Mrs. C. W. Roy, pair of solid silver butter knives.

Mrs. F. A. Roter, pair of elegant silver vases.

John M. Funk, beautiful card case of silver, elaborately chased.

From Geo. J. Sherman, a set of solid silver tea, sugar and cream spoons, lined with gold.

Mrs. S. Boyer, silver call bell.

Mr. and Mrs. J. W. Alexander, one dozen egg spoons, etruscan style and gold lined.

From E. W. Parshall, a gold-mounted flower vase.

From Miss Belle Waters, a beautiful point lace fan, inlaid with pearl.

Glove case filled, from Mrs. Geo. Wetmore.

From Miss Hattie E. Gibbs, a pair of silver flower vases beautifully engraved.

Messrs. Cady & Thompson, two large solid silver sugar and cream holders lined with gold.

From Wm. H. Abbott, a handsome combination berry set of fifteen pieces, gold lined, lotus pattern.

Sam. A. Brown, pair of silver salt receptacles.

Mr. and Mrs. F. W. Ames, an elegant pickle holder, with knife and fork.

Mr. and Mrs. J. H. Winsor, case of silver nut picks.

Captain G. B. Easterly, a pretty salt receiver, in imitation of a gondola, with silver and gold oars.

Mr. and Mrs. Z. Martin, silver bell.

Mr. and Mrs. A. R. Williams, soup ladle, solid silver, lined with gold.

Mr. and Mrs. Eaton, a magnificent French clock with two side pieces.

From Wm. H. Wood, an elegant combination set of berry and ice-cream spoons, nine pieces.

John and Nelson Farel, a lovely set of eighty pieces of solid silver, also a set of pearl mounted knives and forks of twenty-four pieces, including carver and steel. Those articles were of rare beauty and finish.

From James Farel, a solid sterling silver celery dish.

From Mr. & Mrs. Hunnewell, pair of antique bronze vases.

R. H. Sterrett, an elegent French clock for boudoir, heavy gold case, plate glass sides, and exposed ruby palette.

From C. F. Tuttle, an elegant oil painting executed by himself, and representing the bride and two lady friends reclining beneath a shady tree and surrounded by croquet and other summer implements of pastime.

From Miss Elma Broas, a lovely parlor stand, with gilt standard and marble top, made from a design by the giver. This gift was particularly beautiful.

Mr. and Mrs. M. C. Beebe, handkerchief and glove-box elegantly mounted.

Mr. and Mrs. H. H. Cummings, a pair of solid gold napkin rings.

A large monogram of rare and many colored flowers in the shape of a standard was presented by Messrs. Will A. Collins and George A. Chase.

The Toilettes,

especially those of the ladies, exceeded in costly magnificence those of any previous social gathering ever given in this city, and were in nearly every instance especially designed for this occasion. In accordance with the custom recently inaugurated by the more select circles of metropolitan society, we refrain for making individual mention of each guest's particular toilette, nor would the crowded state of our columns permit the gratifying of public curiosity in this respect, were such not the case.

Shortly after midnight the assemblage began to quietly withdraw, after wishing the happy pair a long and happy continuation of the wedded life that was inaugurated under such happy auspices, and amidst the good wishes of a host of friends and admirers.

172. NUMBER OF REFINERIES AND THEIR CAPACITY

The number of refineries in the principal centers of the United States and their capacity is shown in the following article prepared by the *Titusville Morning Herald*. It appeared on May 18, 1872.

The following statistics of the refining capacity of different sections have been prepared in response to the interest manifested by the people upon the subject. The figures were furnished us by refiners from each location reported, and we believe them to be correct.

Oil Creek and Allegheny River

The figures opposite each name represents the amount of crude used per month; the star denotes works not now running.

Titusville	
Porter, Moreland & Co	25,000 bbls.
Esterly & Davis	10,000 "
Bennett Warner & Co	15,000 "
Pickering, Chambers & Co	6,000 "
Jackson & Emerson	4,000 "
All others	6,000 "
Miller Farm	
Johnson, Perry & Co	5,000 bbls.
Dudley & Co	2,000 "
Williams Bros	3,000 "
Gregg Switch.	
*J. Wallace (two works)	5,000 "
Pioneer.	
*Whitford & Northrup	1,000 "
Boyd Farm.	
*J. N. Patterson	4,000 "
Petroleum Centre.	
*Bartlett & Newton	1,000 "
H. C. & Co	5,500 "

Columbia Farm.	
Columbia Oil Works	5,500 “
Tarr Farm	
Levi Kerr	1,500 “
Rynd Farm	
John Wallace	2,000 bbls.
Rouseville	
Doe & Frazier	1,200 “
M'Clintockville.	
*Wamsutta Oil Works	2,500 “
Oil City	
Economy Oil Works	5,500 “
Silverleyville	
Imperial Oil Works	20,000 “
Oleopolis	
*Prather, Patterson & Hatch	2,500 “
Tidioute	
*Day & Co	2,500 “

Cleveland

which has long been the great centre of the refining interest, has a capacity which requires 16,000 bbls. of crude daily. The Standard Oil Company, which has absorbed all other refineries except those of Hanna, Chapin & Co, and Bishop & Hassil, takes about 15,000 bbls of this.

Pittsburgh

uses about 10,000 bbls. daily, a large portion of which goes to the branch of the Standard Company located in that city.

New York

has about the same capacity as Pittsburgh.

Boston

about 1,500, and

Baltimore

500 bbls.

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